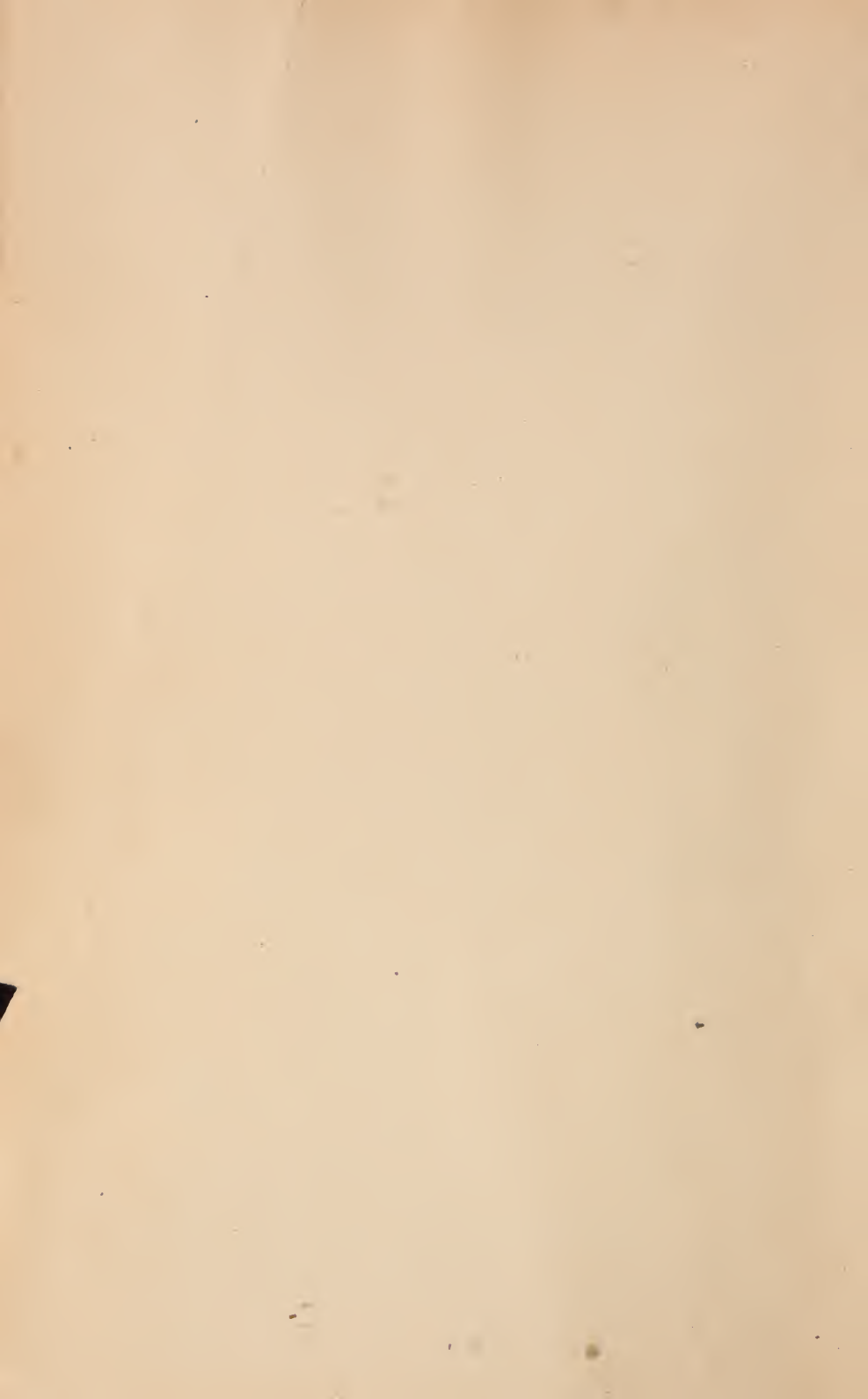


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XENIA, OHIO.

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Contributions.

“A word fitly spoken is like apples of gold”—SOLOMON.

THE CHEMISTRY AND PHYSIOLOGICAL ACTION OF MERCURY AS USED IN AMALGAM FILLINGS.

BY E. S. TALBOT, M. D., D. D. S., OF CHICAGO.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

The name Mercury was given by the ancients in honor of Mercurius, the messenger of the gods, whose volatile character mercury is supposed to typify. It is seldom found in the native state, but is usually combined. The most important as well as the most abundant combination is the sulphide of mercury, or cinnabar. It is found united with silver, forming an amalgam. The largest and richest mines are found in California. The process of obtaining pure mercury from the sulphide is very simple. The ore is mixed with one-half its weight of lime, and then distilled in iron retorts. The mercury is extracted and the lime remains in the retort. It is a heavy fluid metal, odorless, tasteless, of a whitish color, and when free from other metals it does not tarnish, and its globules roll freely over white paper without leaving a streak or losing their form. It is liquid at ordinary temperatures. It boils at 662° F., and solidifies at —40° F. into a

malleable mass of octahedral crystals. It is volatile at all temperatures, evaporation being much accelerated by the application of heat. The symbol is Hg, atomic weight 200. Mercury combines with other elements and radicals in two proportions. Those compounds in which the *lesser* acidulous radicals are united are termed mercurous. The higher mercuric—thus, calomel (HgCl) is mercurous chloride; while corrosive sublimate (HgCl_2) is mercuric chloride. Mercury combines with chlorine, iodine, bromine, lead, oxygen, phosphorus, sulphur, arsenic, bismuth, etc., forming compounds, some of which are used medicinally. The metal itself, rubbed up in confection of roses, licorice or suet until globules are not visible to the unaided eye, is used in medicine.

Amalgams were introduced into this country as fillings for decayed teeth in 1833. Since that time unlimited discussion has arisen among the general practitioners of medicine as well as the dentists, in regard to the practicability of utilizing this material in dentistry. The first amalgams were composed of pure silver and mercury, manufactured by M. Taveau. Later, Dr. Evans combined pure tin with a small quantity of cadmium, and Dr. Townsend formed an amalgam with four parts of silver to five parts of tin. Following these compositions came numerous others made from gold, silver, platinum and tin, until to-day we have more than a hundred varieties in the market, varying slightly in metals and proportions, that each manufacturer may rightly claim an original preparation. These different metals are melted in a crucible in their proper proportions by weight, and poured into ingots. These are filed or cut into minute particles, ready for use. When the cavity in the tooth is prepared, a sufficient quantity of filings is rubbed up with mercury into a paste, the surplus mercury squeezed out, and the filling is inserted into the tooth.

From its first application as a filling the better class of dental practitioners waged war against it on general principles; not alone on account of the deleterious effects of the mercury in its composition, but because of its unsightly appearance and demoralizing effects upon the dental profession. The manner in which it was introduced into the country called forth the censure of all having a regard for professional etiquette: "Two adventurers, without skill or any claim to the title of dentist, suddenly ap-

peared in New York and began dental practice amid such a shower of advertisements, a profusion of display, and a metaphorical flourish of trumpets, as caused our staid and dignified dental ancestry to bound with surprise and indignation.” *

From that time onward the use of amalgam has increased, until now tons are consumed yearly in filling teeth. Dr. Harris, in his opening address to the first class of the Baltimore College of Dental Surgery, in 1840, says: “It is one of the most objectionable articles for filling teeth that can be employed, and yet from the wonderful virtues ascribed to this pernicious compound by those who used it, thousands were induced to try its efficacy.”

At the meetings of the dental societies this subject was spiritedly discussed with strong arguments against its use. The first official act in the matter was the appointment in 1841 of a committee by the American Society of Dental Surgeons to report on the use of lithodeon—mineral paste, and all other substances of which mercury is an ingredient, for stopping teeth. They reported in substance that the use of all such articles was hurtful to the teeth and every part of the mouth, and that there was no tooth in which caries in it could be arrested and the organ rendered serviceable by being filled, in which gold could not be employed. This report was unanimously adopted.†

At a meeting of the same society July 20, 1843, the use of amalgams was declared to be malpractice, and a committee appointed to further investigate the subject. They referred the matter to the Medical Society of the county of Onondaga, New York. The report of the medical committee was to the effect that no care in the combination or use of the paste will prevent its occasional bad effects.

In 1845, the Mississippi Valley Association of Dental Surgeons resolved that the use of Amalgam fillings was unprofessional and injurious, and would not be countenanced by its members. The actions of the various societies had very little effect; amalgam forced its way into the offices of the majority of dentists in the country. Many excellent practitioners were expelled, and others resigned from the societies to which they belonged.

In 1850, a resolution was passed unanimously by the American Society of Dental Surgeons to rescind the pledge made by the

*History of American Dentistry.

†American Journal of Dental Science.

same society previously. Thus ended the so-called amalgam war. It will be observed that no scientific researches were made to ascertain whether deleterious effects were produced by mercury; the chief object of the disturbance was, apparently, to rid the profession of charlatans and their obnoxious materials. These discussions, which have caused so much bitterness and enmity among the members of societies, have latterly aroused a feeling of enquiry into the scientific analysis of this filling for teeth, resulting in the discovery of a quality in its composition capable of producing salivation, and all other symptoms of poisoning. Many able practitioners of dentistry have experimented with all the different acids with no satisfactory results. When we consider that nitric acid dissolves mercury at 60° F.; concentrated sulphuric acid dissolves mercury only when heated; hydro-chloric acid does not affect it at all—how can we expect the weaker acids of the mouth, diluted by saliva, to cause a chemical change?

If past experiments have proved unsatisfactory, it does not discourage me in the attempt to discover, if possible, by experiment and by the careful study of the subject of mercury in its every particular, some clue to this perplexing question. Having satisfied myself that the poisonous effects are not produced by the chemical changes in the mouth, I have entirely ignored this theory, and have looked about for a more simple and direct cause. In commenting upon mercurial poisoning, the idea has been advanced that the vaporization of mercury takes place only during the hardening process, and, that being consummated so quickly, no deleterious effects can occur.

In the construction of an amalgam two changes take place, the first being the mechanical, or mixing together of the ingredients, the second the chemical, or hardening of the composition. My first experiment was to place metallic mercury in a four ounce glass-stoppered bottle, and submit it to the gold test, by suspending a piece of gold foil in the centre of the bottle, taking care that it did not come in contact with the sides, and cementing the stopper. I placed it under different temperatures, of from 20 to 130° F. In about thirty-six hours the surface of the gold became coated with mercury, giving it a gray color. This proved the evaporation of the metal. I then mixed a quantity of the Chicago Refining Co.'s amalgam, according to their formula, three parts of mercury to eight parts of filings, and subjected it to the same

test. The reagent was not sufficiently delicate to produce any perceptible change. Wishing to bring the highest chemical skill to bear upon the experiments, I consulted Prof. Haines, of Rush Medical College, who kindly assisted me. At his suggestion, I procured two delicate reagents, the ammonio-nitrate of silver, and the chloride of platinum. In preparing the ammonio-nitrate of silver, I allowed thirty grains of nitrate of silver to the ounce of water, and put a small quantity of the solution in the test tube. This was heated, and aqua ammonia added until a precipitate formed. Increasing the aqua ammonia until the precipitate cleared up, I took a quill and, with this liquid, wrote upon white paper. After putting the substance to be tested in the bottle, the strip of paper was placed across the mouth of the bottle, and the stopper cemented. Should a vapor arise, the liquid would become black. Leaving the bottle for ten minutes, I examined it again, and found the writing in plain black coloring. The chloride of platinum produced the same results, but required more time to accomplish it. The rapidity with which the evaporation of mercury takes place depends upon the amount of heat and the surface exposed, and not upon the quantity of mercury contained in the fillings. Thus a jar containing one quart of water would evaporate the same quantity as a jar of like surface containing a gallon, the latter taking four times longer to empty.

In the following experiments, I attached a thermometer to a water bath, and heated to the temperature of the body, 98° to 100° F., to maintain an even temperature. I conducted these experiments in the dark, as the rays of light decompose the ammonio-nitrate of silver. The strips of paper containing the reagent were placed in the mouths of all the bottles, including an empty bottle, which was used in each experiment, to prove there was no mistake.

Experiment No. 2.—Three bottles were prepared. In the first was placed an amalgam filling made from Chicago Refining Company's amalgam, according to their formula. In the second was placed an amalgam filling of like size, containing five grains more of mercury. In the third bottle there was nothing. After a lapse of ten minutes I examined the bottles and found the writing on the paper across the mouth of bottles Nos. 1 and 2 was black, while there was no discoloration of paper in the third bottle.

Experiment No. 3—A repetition of No. 2, with the exception of the reagent chloride of platinum being substituted for the ammonio-nitrate of silver. The results were the same in both. The time required for the latter being ten hours, while but ten minutes were required for the ammonio-nitrate of silver. In conducting the remainder of the experiments the ammonio-nitrate of silver was employed, it being the more delicate reagent, consequently producing a more marked impression, and also consuming less time than chloride of platinum.

Experiment No. 4—Two bottles were prepared. In the first bottle were placed scraps of amalgam six months old. In the second there was nothing. In ten minutes the writing on the paper was black in the first bottle, and uncolored in the second.

Experiment No. 5—Bottle No. 1 contained amalgam fillings which had remained in the teeth from two to ten years. Bottle No. 2 was empty. The results in both being the same as in experiment No. 4.

Experiment No. 6—In bottle No. 1 I put an amalgam filling which had been in the mouth sixteen years. In bottle No. 2 there was nothing. At the end of twenty-four hours I found the paper discolored in the first, and not in the second.

Experiment No. 7—To demonstrate that nothing in the composition of the fresh filings could cause the discoloration I allowed some filings to remain sealed in the bottle for twenty-four hours. At the end of that time discovered no signs of color on the paper.

Experiment No. 8—I procured four preparations of mercurious vivus.

No. 1	contained	$\frac{1}{10}$	gr. mercury	to	1	gr. of	sugar of	milk.
No. 2	"	$\frac{1}{100}$	"	"	"	"	"	"
No. 3	"	$\frac{1}{1000}$	"	"	"	"	"	"
No. 6	"	$\frac{1}{1000000}$	"	"	"	"	"	"

A small quantity of each of these preparations was placed in bottles marked 1, 2, 3, 4. In No. 5 there was nothing save the reagent. The effect was alike in each of the four bottles containing the mixture. Those having the greatest quantity of mercury caused the deepest color to the paper and required less time. As before, No. 5 was unaffected.

In order to determine the difference, if any, in weight after evaporation, I obtained strong glass tubes one-half inch in length,

and one-fourth inch in diameter, and packed them carefully with amalgam fillings. Allowing twenty-four hours for hardening, I weighed them, and at the end of three months I again weighed them, finding in some no change at all, and in others an increase of weight. This is accounted for by the fact that oxydation and accumulation of moisture on the amalgam equaled in some and exceeded in others the loss of weight by evaporation. I am in possession of numberless cases of poisoning from mercury in amalgam fillings. I will mention but one, and report one case from my practice.

The Dental Register, January, 1872, has the following case of poisoning from mercury in a tooth filling: "John T. Smith died from salivation, caused from having a tooth filled with amalgam. Dr. Sprague attended the case, and afterwards called Drs. Davis and Buffin, all of whom agreed that he was suffering from the effects of mercury present in the amalgam used in filling one of his teeth. The filling had salivated the unfortunate man, and, as the inside of his mouth, throat and windpipe swelled, respiration was hindered, and finally ceased altogether. Dr. Davis made the post-mortem examination in the presence of the coroner and jury of inquest, opening the chest, taking out the lungs, and extracting the filled tooth. No signs of any other diseases were found, except that caused by the mercury, and it was made clear to the jury by the Doctor that this caused his death. The jury returned a verdict that the deceased came to his death by suffocation, caused by inflammation of the glands and infiltration of the tissues of the neck, producing closing of the trachea by pressure thereon; and we further believe that the above causes were brought about by the action of mercury, used in filling the second molar tooth of the right side of the lower jaw, by Dr. E. D. Keef, Marysville, Kansas."

A case in practice: A lady from one of the towns in Illinois came to Chicago for treatment, having been troubled with dyspepsia and nervous debility for two years. While under the physician's care she complained constantly of a peculiar feeling and taste in her mouth. The doctor suspected the trouble might arise from a rubber plate which she had worn for four years, and advised her to consult me. Upon examination, I found a full upper plate, composed of rubber, and on the lower jaw the molars were gone, except the second and third upon the left side. In

the crown of the wisdom tooth was a large amalgam filling, and also one in the crown and posterior approximal surface extending to the free margin of the gum in the second molar. These had been inserted about two years previous. I noticed that the gums and the mucous lining of the mouth and salivary glands were quite tender. There was a strong metallic taste in the mouth, and a metallic odor to the breath. She had a peculiar paralyzed sensation in the left side of the tongue, which she had experienced for two years. She also informed me that the saliva flowed so freely that at night her clothing and pillow were saturated, and estimated the loss of saliva each night to equal one pint. I suggested the removal of the amalgam fillings and rubber plate, and substitution of gold. She assented to the proposition, and as early as possible I undertook the operations. Upon removing the amalgam fillings and applying the rubber dam, the saliva flowed in streams, completely saturating several towels. After refilling the teeth, and inserting a gold plate, the unpleasant sensation in the tongue and metallic taste disappeared. At the end of two weeks the glands were greatly improved, and the soreness under the tongue (of which she had complained at her first visit) was healed.

It is the accepted opinion of physicians generally, that mercury uncombined has no constitutional effect. Dr. Atkinson said before the meeting of the American Dental Association in Boston, August, 1880: "You must combine the molecules of mercury with some other agent before they can have any affinity for the body at all. One who is familiar with the old method of making looking-glasses, with tin foil and mercury, knows that the workman would be literally saturated with it, so that he could not be capable of handling a gold or silver watch without its becoming amalgamated, and all this, too, without his health being compromised by the mercury so long as it remains in a metallic state."

The correctness of this theory may be questioned, as it has been proven that these workmen have been affected by the vapor of mercury, when not protected by a veil over the mouth and nose.

Dr. Bartholow, in his work on Therapeutics, p. 177, says: "As used in the mechanical arts, by gilders and others, the fumes of mercury cause wasting, ptyalism, necrosis of bones, trembling, impaired intellect, and, in women, abortion." "Walter Pope mentions a workman who for six months had not handled mer-

cury; yet he rendered a piece of copper as white as silver by rubbing it between his fingers." Parish says that long trituration of calomel increases its power to salivate. This is also applicable to all preparations of mercury used with an excipient, medicinally. The homeopaths divide and subdivide particles, according to the required preparations, some of the radical members of the school claiming best results from the highest potencies, while the more conservative practitioners prefer a middle ground. They rub up pure mercury with sugar of milk into six different grades, the first containing one-tenth gr. of mercury to one gr. sugar of milk; the second, one one-hundredth gr. mercury to one gr. sugar of milk, etc., as before mentioned in this paper. These are the finest forms in which mercury is prescribed, and yet the severest cases of salivation and constitutional symptoms have been produced by these agents, on account of their being so readily taken up by the blood. Is it not a reasonable supposition that, if poisonous symptoms are produced in proportion with the subdivision of the particles of mercury, that the system will be more severely affected by the vapor of mercury, which is finer than any mechanical subdivision can be? Dr. Somers recalls an instance of a lady patient becoming completely salivated, the gums and mucous lining of the mouth inflamed and teeth loosened, by taking a second bath, in which forty grains of the black oxide of mercury were used. He thinks she could not have absorbed one-twentieth of the amount in the form of vapor.

As a forcible illustration, I quote the experience of the sailors on board the man-of-war "*Triumph*," which, in April, 1810, took from the wreck of a Spanish ship thirty tons of quicksilver, contained in bags of fifty pounds each.

In the course of a fortnight some of the bags decayed and burst, the quick-silver mixing with the bilge water, the emanations from which coated all the metal about the ship. Nearly all the crew were salivated.

In order to ascertain the effect of the vapor of mercury, I have employed it in a series of experiments upon plants and animals.

Experiment No. 1—While conducting my experiments in the laboratory I was frequently visited by a family of roaches, who appeared to take an interest in my operations. Suddenly they all disappeared, and it immediately suggested itself to my mind that their sudden departure argued favorably in the question of

utilizing them in my experiments. I took four two-ounce bottles and put in No. 1 pure mercury; No. 2, amalgam scraps six months old; No. 3, fillings from two to ten years old; No. 4, fillings sixteen years old. After placing a roach in each bottle, I tied a piece of cloth over the mouth in order that the air might circulate. Evidently the bugs were not fond of mercury, for they clung to the tops of the bottles as long as life lasted. Roach in No. 1, containing pure mercury, died in three days; roach in No. 2 was next to follow; roach in No. 3 lived a few days longer; and in No. 4 outlived them all by several days.

Experiment No. 2—I prepared three bottles. The No. 1 contained ten grains of pure mercury; No. 2 contained an amalgam filling three months old; No. 3 was an empty bottle. In each of the bottles I put two roaches. In two days one in the bottle containing pure mercury died; the remaining one in the same bottle lived nine days from the time it was put in. In the bottle containing the amalgam filling one roach died in four days, while the other one died in eleven days; while those in the empty bottle lived fifteen and sixteen days.

Experiment No. 3—On February 9th I placed an amalgam filling at the base of a sensitive plant. On examination, about the fourth day, I discovered that the extremities of the leaves had changed color and were dry and brittle, like the leaves in early Autumn; gradually the whole leaf was affected, and at the end of ten days the plant was dead, notwithstanding the care and nourishment it received.

Experiment No. 4—In a four-quart glass jar I put about four ounces of mercury, and made a platform of wire gauze, fastening it two inches from the bottom of the jar. I placed a Guinea pig in the jar, and covered the top with gauze. Twice each day I removed him for exercise and nourishment. He thrived well for ten days, but at the end of that time he commenced to droop, and refused food and water. He became emaciated and trembling; the body and limbs were cold. He lingered along for two weeks and died.

Experiment No. 5—I administered six grains of *mercurius vivus*, first trituration, to a dog with his supper, and repeated the dose next morning with his breakfast. The blood and liver were examined under the microscope in the evening and found to contain globules of mercury.

It is the opinion of many eminent scientists that mercury

inhaled into the lungs produces a greater effect than when taken into the stomach. Among this number Prof. Stillé in his *Therapeutics*, Vol. 2, page 789, says: "Of the several modes by which mercury is made to enter the body, inhalation most speedily produces the specific influence of the medicine." Claude Bernard, late Professor in "*Le College de France*," makes the same statement in one of his lectures. This is readily understood when we consider that the drug taken into the lungs in the form of vapor is distributed over a large surface and brought in direct contact with oxygenated blood, and thus carried directly to all parts of the body.

Mercury taken into the system in small quantities, long continued, manifests itself in a variety of ways. One of the first symptoms noticeable is an increased flow of the secretions of the body—salivation being the most striking—the glands becoming inflamed and the mucous membrane tender. The gums tumefy and change in color to a dark rose tint; the tongue is swollen; the patient not only experiences an unpleasant metallic taste, but the breath becomes impregnated also. Sometimes extensive ulcers attack the throat, gums and cheeks; œdema of the glottis, with difficulty in breathing and swallowing. The digestive apparatus is involved, with loss of appetite, nausea and vomiting, and frequently pain and tenderness of the stomach; the bowels loose, and often bloody stools. The fatty constituents are removed, and the patient becomes emaciated; no part of the body is more affected by mercury than the nervous system; the body trembles; sometimes one limb, and again both limbs contract. A sense of coldness and occasional chills are experienced; often neuralgic pains are felt, particularly around the motor nerves; mental debility and loss of memory. These are some of the many symptoms caused by the inhalation of the vapor of mercury.

RESUME.

There are in the market many varieties of amalgams. Evaporation does not depend upon quality or age, but all amalgams will send off the vapor of mercury. This has been proved conclusively by its destruction of animal and vegetable life, and by chemical tests. Evaporation is facilitated by an increase of surface, consequently a greater amount of vapor would arise from several small fillings than from one large filling. The facility with which mercury is taken into the lungs by continued inhala-

tions and the rapidity with which it enters the blood, requires less mercury to produce systemic effects than when taken into the stomach. In order to produce systemic effects from metallic mercury, it must be rubbed up with an excipient, to reduce the particles to a size capable of entering the capillary system, or it must be taken into the lungs in the form of vapor.

THE PAST, PRESENT AND FUTURE OF MECHANICAL DENTISTRY.

BY L. P. HASKELL.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

WHEN your committee requested me to prepare a paper for this meeting, and the subject was called for, I said it might be "The Past, Present and Future of Mechanical Dentistry." So I will offer for your consideration, in a few words, some thoughts, intended to awaken inquiry, and provoke discussion upon this subject.

While there has been, during the last thirty years, great advances made in Operative Dentistry, in its material, instruments and methods, it is true that during the same period there has been little or no progress made in Mechanical Dentistry, so that practically the past and present of this branch of dental science, during this epoch are synonymous terms.

The cause of this condition of things has been mainly owing to the introduction of vulcanized rubber, by means of which a horde of quacks have foisted themselves upon the community, and cheap John, "\$8 set" shops have been made possible. To such an extent has a demand been created for these cheap sets, it has discouraged the profession generally from recommending and urging upon their patients the use of a better, healthier and more artistic mode of inserting teeth, requiring more expensive materials, and greater mechanical skill and artistic taste, but of course, producing a piece of work of greater intrinsic value.

A little more than thirty years ago the use of plaster of Paris for impressions, began to come into general use. There has been nothing better for reliable impressions, in *all* cases, introduced since.

Thirty years ago a partner of mine, in Boston, Dr. D. H. Goodno, after much experimenting for a suitable metal for dental

dies, using zinc, tin, type metal, fusible metal, brass and iron, at last tried "Babbitt metal," then but little known, and it remains to-day the *only* metal that has all the requirements of a dental die, viz: non-shrinkage, hardness, toughness, smoothness, and melting at a low temperature, so that plates swaged upon these dies, fit the mouth as they do the plaster cast; seldom is a second die required. And yet, our dental colleges, with one exception, I think, and the great mass of the profession, still plod along in the use of zinc with all its annoyances.

Thirty years ago, the profession were just abandoning the use of spiral springs for retaining plates in the mouth, and beginning to use atmospheric pressure for that purpose; the plate was swadged to fit the plaster cast, sometimes raising it slightly over the hard palate. To-day no better method exists.

Thirty years ago, metal plates were used exclusively, and to-day they are the only suitable material, in all respects, for artificial dentures.

Thirty years ago, "gum sections" were carved for each case, and mounted on gold plates, and were used very extensively throughout the Eastern States. But to-day the *moulded* sections have taken their place, and the result is a stereotyped, stiff and unnatural looking system of artificial teeth.

Thirty years ago, Dr. John Allen brought to the notice of the profession his "Continuous Gum Work," and it remains to-day unchallenged as the only perfect method of constructing artificial dentures, and I must confess I see little room for improvement.

Thirty years ago, it required at least a fair degree of mechanical skill to make and insert a set of artificial teeth. To-day the merest tyro can buy a set of "gum sections," a piece of rubber, take an impression, and make a so-called set of teeth. But it is sickening to witness the result, as one moves along the street, enters the public assembly, or the social circle. "Artificial teeth" written everywhere. This is the Present.

What is to be the Future? It is to be just what an enlightened, progressive profession shall choose to make it.

To make it what it ought to be, it will be necessary to create a public sentiment that shall demand something besides rubber or celluloid, as the best, or even a good, material for plates. Let your patients know that these vegetable bases are, to a greater or less extent, injurious to the mouth and often to the stomach; that thousands of mouths are ruined by their use, in consequence

of the undue absorption of the alveolar processes, always induced, to a greater or less extent, by the non-heat-conducting qualities of these materials; and also the more serious effects often produced by the poisonous qualities of the coloring materials of red vulcanite.

Then the Dental Colleges ought to impress these facts upon their students.

More time should be devoted in these institutions to instruction in the practical details of the laboratory, even at the sacrifice of some of the dry details of theories about matters of little or no importance to the student; more instruction in *metal* work, and less in vegetable bases; simplifying processes, and abandoning obsolete methods and ideas.

More attention should be paid to the artistic, or the esthetic, requirements of mechanical dentistry; then we should the oftener witness teeth selected and arranged as nature would have them, the contour of the mouth restored, and harmony of the features re-established.

It would be better for the interests of the profession if there could be a division of practice, so that it would be an object for dental students, so disposed and having a taste for the mechanical department, to prepare themselves for the exclusive practice of this branch of the science.

I would not entirely dispense with the vegetable bases, for the reason that many are unable to afford anything better, but would advise their use only for that reason. And, when used, advise the use of plain teeth, as by that means more artistic results can be obtained.

[Continued from December Number.]

FRACTURES OF THE INFERIOR MAXILLA.

BY DR. THOMAS L. GILMER, QUINCY, ILL.

Illustrated by Dr. G. V. Black, Jacksonville, Ill.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

TREATMENT.

In early times these fractures probably perplexed the surgeon more than any others he was called to treat. Various methods were resorted to. Teeth, in those days, were not considered so essential to the comfort, health and good looks of the patient as

now. It was not considered of much importance if the contour of the face were marred by the poor adjustment of the fragments. If the parts grew together fairly well, it was of little consequence whether the articulation were entirely restored or not. If the posterior fragment *were* a little too high, and the teeth of this piece only, came in contact with those of the upper, the surgeon was not particularly disturbed; he knew full well what a regulator of irregular things Nature is, and hoped that, in some way, in the future the teeth on the one side might be depressed, and on the other elevated. The patient was thankful to get through alive, while the surgeon congratulated himself on having treated the case so successfully.

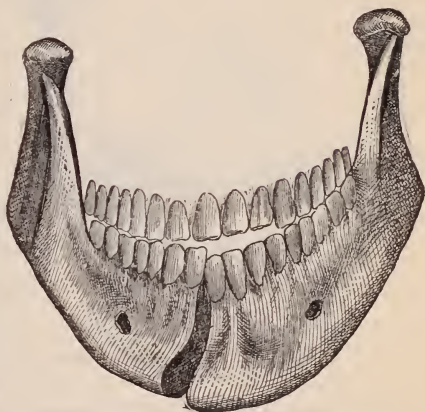
It is different at present. When the jaw is well, the face must, if possible, have resumed its original contour; the teeth must articulate as before the accident; otherwise our patient has reason to be dissatisfied, and we are no better pleased than he.

It is only by examining the older authors, that one is able to comprehend the straits into which the surgeon was driven, in the treatment of these cases, until the practical dentist stepped in and helped him out of his dilemma.

LIGATURES.

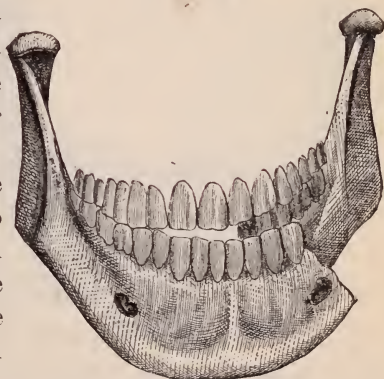
The earliest treatment of these fractures in which ligatures were employed, is mentioned by

FIG. 11.



Fracture of the Lower Jaw between the Lateral and Central Incisor. Displacement slight.

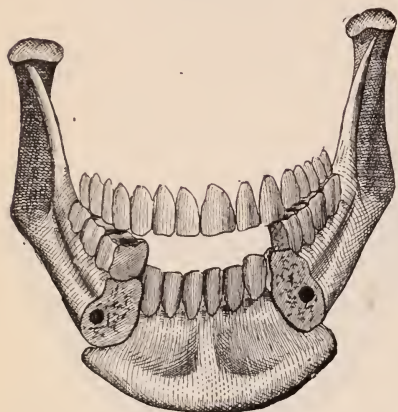
FIG. 12.



Fracture of the Lower Jaw between the Bicuspids, with displacement of the short fragment inwards.

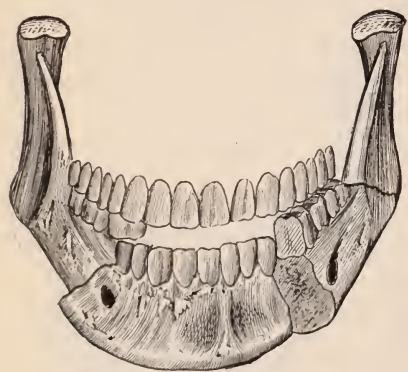
Hippocrates, in the fifth century B. C. The material of these ligatures was silk, linen, gold, and platinum; horse hairs were also suggested by Celsus.

FIG. 13.



Double fracture of the Lower Jaw in the region of the Bicuspid, showing displacement of the Anterior Fragment downward and backward between and below the ends of the Posterior Fragments.

FIG. 14.



Triple fracture of the Lower Jaw, with one end of the anterior piece thrown outward and the other inward. Displacement is prevented at the angle of the jaw by the muscular attachments.

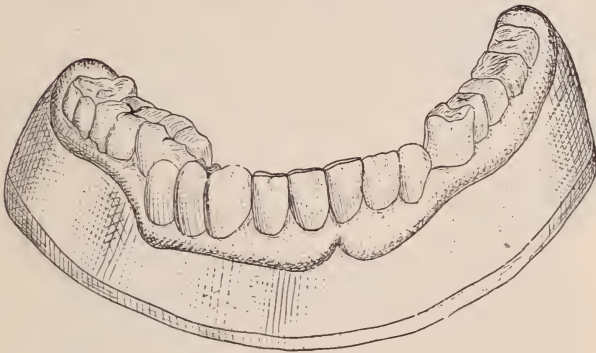
Metallic ligatures are still occasionally and advantageously employed. One reason why this form of treatment has not been more successful is owing to the fact that, in applying the ligatures, only one or two teeth on each side the fracture have been utilized in fastening the wire; while if this method be adopted, the more teeth the wire is secured to the better.

If all are brought into use, beginning at the back tooth, and passing between the teeth, forming the figure eight in passing around them, there is greater certainty of success. If only a few are used in fastening the wire, the constant strain will loosen them in their sockets, and, even in the event of a union, the result will be an imperfect adaptation, and possibly the usefulness of the teeth employed will be destroyed. In all cases where muscular contraction displaces the fragments, and rigidly holds them out of place, this manner of wiring is contra-indicated.

Other methods of wiring have been, and are still, very successfully employed. Holes may be drilled in each fragment, beginning on the outer surface, and meeting at the

fracture. (Fig. 36.) This can be done only in the circular or anterior portion of the jaw, and in many cases is quite difficult. Through these holes the wire is passed, a bead is placed on one

FIG. 15.



Cast from an impression of No. 14.

end, and fastened there by a lead ; the parts are firmly brought together, and another bead placed on the other end and leaded. When the parts are properly brought together and firmly fastened, this method will give good results.

FIG. 16.

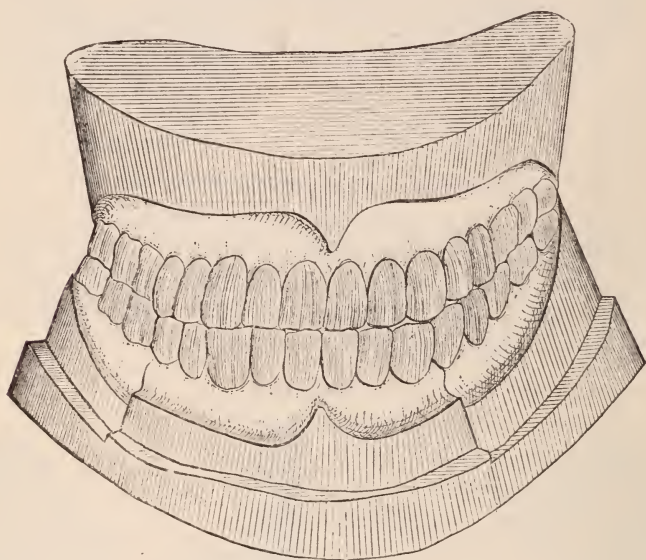


The cast (No. 15) cut apart at the points of fracture.

Another method is to drill a hole through on each side of the fracture and passing a wire through, draw the parts firmly together and twist them. (Fig. 37.) There is an objection to this method. Where it makes the turn, bending at right angles on the corners of the bone, the wire will cut, more or less, and loosening of the

fragments is almost certain to ensue. This might be overcome by using, instead of the ordinary size, much larger wires, sufficiently stiff to stand considerable strain without bending; and they might also be left sufficiently long to extend to the outside of the face, and the one securely wired to the other, both outside and inside the mouth. (Fig. 38.) Instead of tying the two inside ends of the rods, they might be secured to each other by a bar, extending from the one to the other, heads being formed on the rods to secure it. This will occupy less room in the

FIG. 17.



The cast (No. 15) reconstructed and in antagonization with cast of the Upper Jaw.

mouth, and will be a success if the holes can be drilled in the bar to match those drilled in the bone.

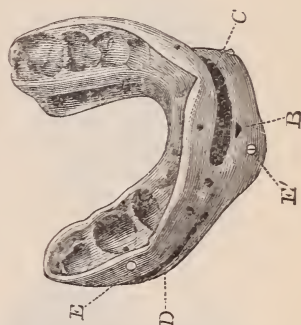
In the absence of natural or artificial teeth, the plan of tying the bones together with wires, is almost the only practical method of treatment. If the denture is complete, or if only a few of the teeth are missing, a wire splint may be formed, adapted to the teeth at their necks, the outer and inner pieces being made continuous by soldering. This is applied, and each tooth wired to the outer and inner parts of the splint. This makes a very

good appliance, which holds the parts firmly in place, and dispenses with outside arrangements. The cleanliness of this appliance, and the facility with which it allows the mouth to be cleansed, are additional arguments in its favor.

THE BANDAGE.

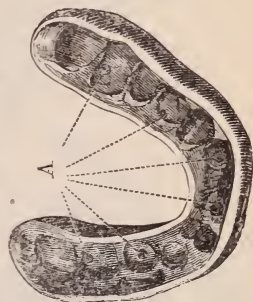
The bandage has been in use for ages, and up to the present time is the most general form of appliance. It is used alone and also in conjunction with other modes of treatment. It is superfluous, in this essay, to mention the many ways of applying the bandage in the treatment of these cases. By referring to any good work on surgery, all we know of them can be found, with one exception, which has been suggested to me by Dr. G. V. Black, of Jacksonville, Ills. He directs the application of it as follows: (Fig. 39.) Stand on the left side of the patient, and begin over the right ear; carry the roller low down behind the occiput, and forward above, but close down upon the left ear; continue across the forehead close down upon the brows, to the place of starting; continue as before to the occiput and to the left side; in crossing the left side with the second turn, carry the bandage high up on the head, and across the median line, with the front edge of the bandage a little back of the roots of the hair; pass down over the right temple, directly down the side of the face, to the lower jaw, and under it, well forward, and upward on the left side, until the bandage is crossed at the top of the head, down and backward, on the right side of the head, passing above the ear to the occiput, around to the left side, forward across the forehead to the right ear. This is continued until the

FIG. 18.



The original Gunning Splint;* screws added by which it may be secured to the teeth, thereby dispensing with outside appliances.

FIG. 19.

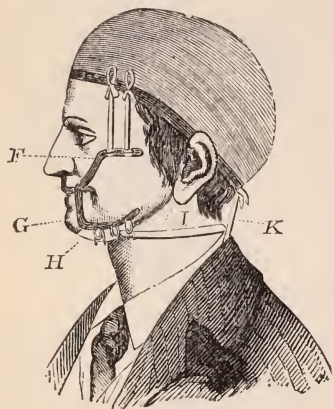


The same as Fig. 18, but without screws. To be secured in place as seen in Fig. 20.

* Cuts 18, 19, 20, and 21 were kindly loaned the Publishers by Dr. T. B. Gunning, for which I am under obligations.

number of layers is sufficient. Pin at the temples, at the top of the head, and at each side of the occiput.

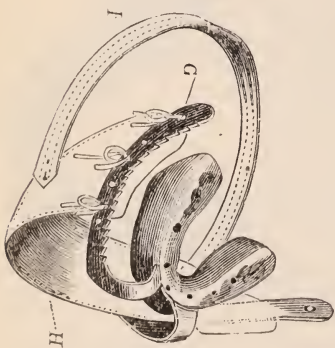
FIG. 20.



Splint (Fig. 19) applied, being held in place by the wing F, to which it is attached.

of the great variety in shape and size of the teeth and jaws of different subjects, the use of a universal splint is impracticable. Splints of various kinds have been employed for more than a

FIG. 21.



A late invention of Dr. Gunning; with this the jaw is free to move.

complicated, were resorted to for the purpose of retaining the fragments in position; but upon the introduction of vulcanite

If thought best, a turn of the bandage may leave the occiput and pass below the left ear to the chin, around by the right side to the occiput again, and then on as before. This bandage may support any form of boot used on the chin. Experiment has shown us that this is a very superior form of bandage.

SPLINTS.

In the treatment of other fractures, one splint may be used for several similar cases, but not in fractures of the inferior maxilla, in which each splint must be formed for the particular case in hand. On account of the great variety in shape and size of the teeth and jaws of different subjects, the use of a universal splint is impracticable. Splints of various kinds have been employed for more than a century. The use of them was suggested by Desault and Chopart. In olden times surgeons placed watch springs on the lingual side of the teeth and tied them there with ligatures, by which they hoped to hold the parts in place. Grooved pieces of metal were sometimes placed over the teeth, across the break. Another method was to fasten a piece of metal on the buccal sides of the teeth; and by means of thumb-screws to pull the fragments into place, and hold them there. Various appliances, some very simple, others exceedingly

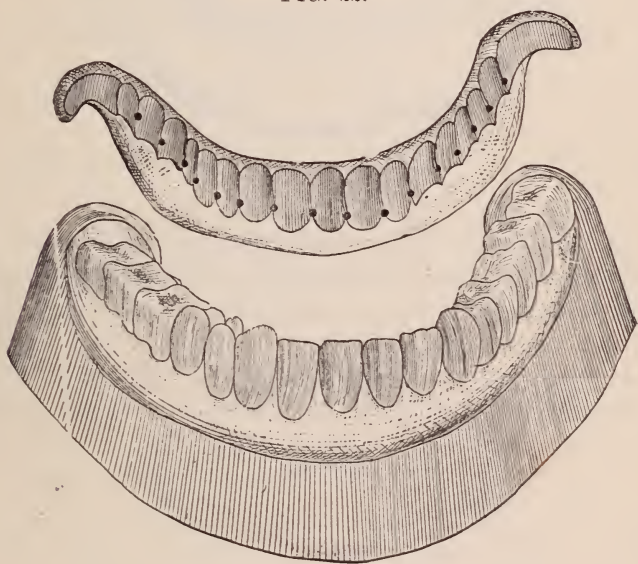
complicated, were resorted to for the purpose of retaining the fragments in position; but upon the introduction of vulcanite

for this purpose, by Dr. T. B. Gunning, of New York, the older forms passed out of use.

IMPRESSIONS AND CASTS.

Preparatory to the formation of a splint, it is necessary to secure correct impressions of both upper and lower teeth and jaws. The upper may be taken in plaster alone, but the lower can be better and more accurately made by first taking in wax; from the inner surface of this, a small portion is cut away, a

FIG. 22.



Posterior Band Splint with cast.

little plaster substituted in place of the wax removed, and the whole is replaced in the mouth. An impression thus secured (if well done) will be correct and sharp. By this means an impression cup of wax is produced, which fits the parts, and very materially simplifies the operation. The sharper these impressions, the greater the certainty of a true articulation after the union of the fragments.

The lower impression may be made either in sections or entire, according to the case in hand; of the comparative expediency of these two methods the operator must judge for himself. If the displacement be so great as to render it improbable that a

good impression may be secured in entirety, it is better to take it in sections. In taking the impression of the lower jaw, it is useless to attempt to hold the parts in position, since the setting of the bone will be done after the appliance is made, by its applica-

FIG. 23.



Open Band Splint.

tion to the teeth, or to the teeth and jaw; therefore, all time given this effort will be lost; besides, in the majority of cases it is impossible to hold the parts in position while the impression is secured.

From these impressions models are to be made. (Fig. 15.) If the impression has been secured in one piece, the cast from

FIG. 24.



Interdental Splint of Rubber or Celluloid, with side arms attached by screws. The arms may be imbedded in the material, but the ordinary vulcanizer is too small to receive them.

it is to be sawed in two on a line with the fracture. (Fig. 16.) The teeth of these two pieces are then carefully articulated with those of the upper model. (Fig. 17.) This is easily done, even though several of the teeth of each jaw are missing; as

there is always an abraded surface of the teeth of one jaw, which exactly corresponds to that of the other; but the greatest care must be exercised in fitting the parts together, as success depends upon the correctness of this part of the

FIG. 25.



Wire frame for side arm interdental splint of gutta percha.

operation. If but the slightest difference is made in the articulation, failure of perfect adaptation is almost certain to ensue, as the fragments not being held squarely together, an undue pressure will be brought to bear on them at one point, while at another they will not touch; consequently, at that point where

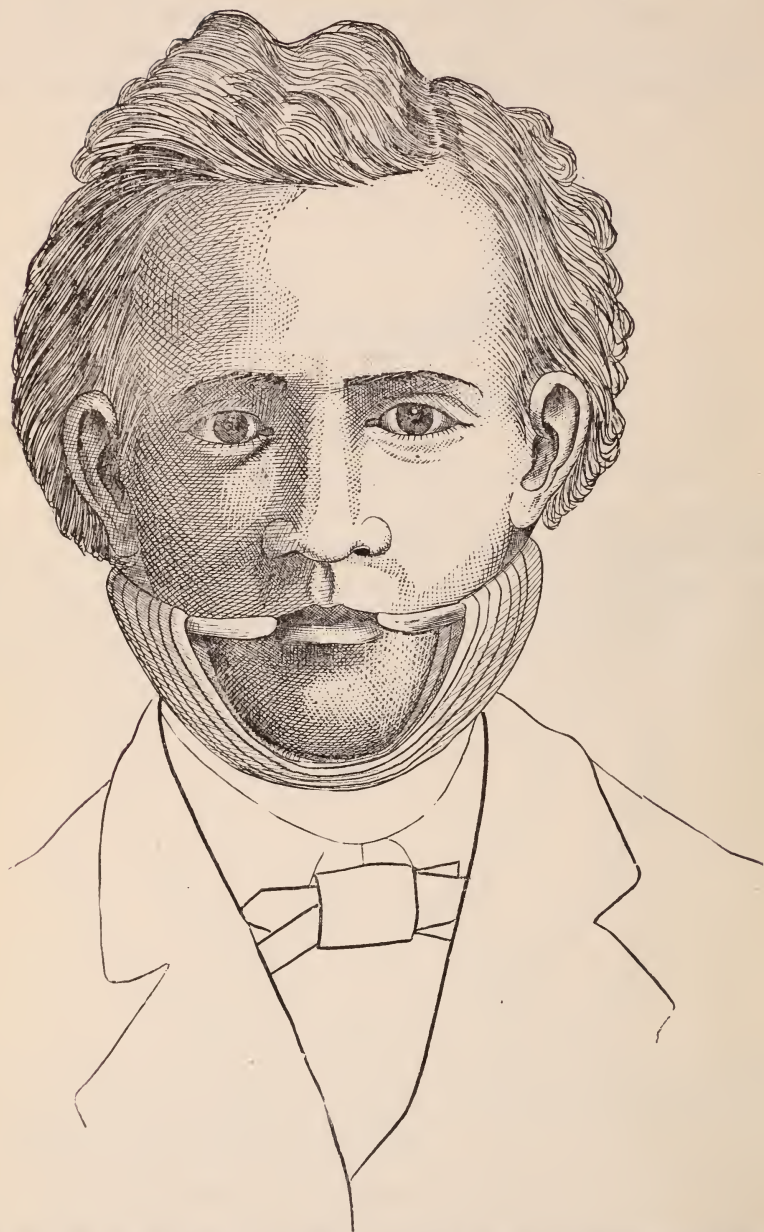
FIG. 26.



Gutta percha Splint, as made on wires (Fig. 25).

there is too great pressure, inflammation will set in and death of the bone will probably follow; union may take place, but if it does, the articulation will be faulty. When the articulation of the two pieces is made with the upper, those representing the lower broken jaw are to be united by the addition of a little soft plaster. If the work has been well done, this reconstructed mode, represents the jaw as it was previous to the accident. The foregoing description of impressions and models holds good, either

FIG. 27.

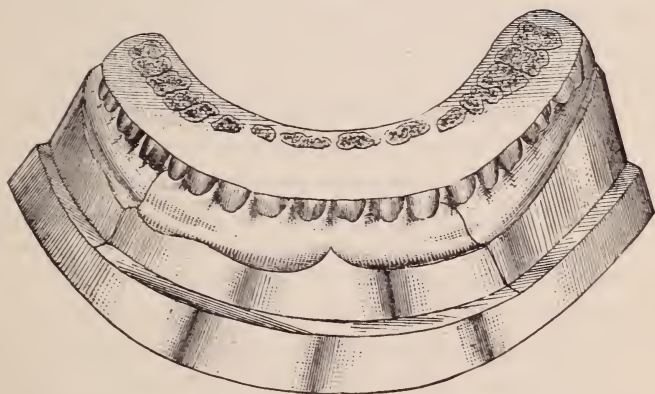


Side arm interdental Splint applied. A gutta percha or plaster paris boot may be used on the chin.

in single, double or triple fractures, unless the impressions have been taken in sections, in which case there are no divisions of casts to be made.

Dental splints are formed in various ways, according to the judgment of the operator and the case in hand. But those recommend themselves as preferable which are the most simple

FIG. 28.



Reconstructed cast (Figs. 15, 16, and 17) with interdigital splint of gutta percha, in which a heavy wire is imbedded to give it sufficient strength.

of construction, and which take up least space in the mouth, having the requisite strength and other qualities which go toward making a splint serviceable.

(To be Continued.)

DENTAL MEETING AT WIESBADEN, GERMANY.

BY W. C. BARRETT, M.D., D.D.S.

THE American Dental Society of Europe is an extraneous, though flourishing institution; it is an exotic, but it thrives. The expatriation of Americans seems a thing at war with the natural course of events. A genuine Yankee usually seeks the land of the setting, and not the rising, sun. "Westward the

course of empire takes its way," said Bishop Berkely, but here is a deportation directly against the strong current of emigration, and, what is more, it has founded a successful colony. Every one knows the restless spirit of the average American, and that he is likely to change his domicile on the slightest provocation, but he never stays in a place which he can get away from unless he is doing well, and despite the inconvenience and thousand annoyances of a residence in a foreign country, the American dentist in Europe usually sticks. The fact that in all the principal cities may be found one or more of them, and that they usually get the very cream of foreign practice, can be significant of but one thing, and that is the superiority of American operative ability. The American Dental Society of Europe occupies an exceedingly abnormal position; but its existence is due to the anomalous state of its members. They work at a disadvantage, because of the distance from their base of supplies, for their American methods of practice make American dental goods a necessity. They get the cold shoulder of the native dentists, and are thus deprived of professional society. They belong to a pushing, progressive class, but are out of the track of advanced thought, and must depend upon the dental journals, and occasional visits from such stray dentists as may be wandering in their vicinity, to keep them abreast with the profession. Both of these sources are inadequate, because home dentists are lacking in their duty to the first, and the second are quite apt to bring *misinformation*. To remedy this state of affairs the American Dental Society of Europe was founded, and it has done an exceedingly good work.

There are a great many counterfeit American dentists in Europe, endeavoring to traffic upon the good name of American dentistry, and they are, as might be expected, the vilest of all quacks. The traveler will, in some obscure street, fall upon a glaring signboard, "American Dentist;" but inquiry will doubtless reveal the fact that not only has the proprietor never seen America, but that he is unable to speak a word of English. There are others who, on the strength of a three months' American tour, or possibly a single course of lectures in an American dental college, (and the blush of shame is too often the only refuge of travelling Americans when the knowledge comes to them that he has probably captured an American degree), boldly

issue their American cards, and assume airs that taint the legitimate, while totally destitute of the training and skill of those upon whose reputation they trade. Such villains as these have depreciated our good name abroad, and between these charlatans whom genuine Americans despise, and the native dentists, who are usually exceedingly jealous of their intruding confreres, our countrymen are too often in a famishing state for professional society.

The regular annual meeting of the Association which stands in place of home and friends, professional ties and social confraternity is, or is intended to be, from Cork to Constantinople, from St. Petersburg to Madrid, a holiday given up to dental and fraternal festivity. The American flag is unfolded, and once more our self-expatriated countrymen rest under the familiar stars and stripes, and hail the protection of the loved national emblem, for none but those who have been for a time strangers to it, can understand the heart-glow with which its sight is greeted. Every member finds in each fellow member not only a professional associate, a co-worker on a strange shore, but a compatriot, animated by the same love and enthusiasm for the land of the occident which inspires his own breast. Knowing all this, the reader may readily imagine how warmly, at the last meeting in Wiesbaden, in Germany, a delegation of live American dentists, a number of whom were well known to them, either in person or by reputation, were received by fellows of the Society. The visitors were supposed to be full of all the professional and social news of home; they had all the freshest "wrinkles" in practice, and were posted in the latest advance of thought and research; they had just been in attendance upon the great International Medical Congress in London, and perhaps had obtained there some new inspiration; but, best of all, they brought with them the breezes of America, the air of the native land so far away.

The appointed time, unfortunately, fell during the sessions of the London meeting, where a number of the members were in attendance, and a conference there held resulted in an attempt, at that late day, to postpone the meeting until all could be present. Some of the letters miscarried, telegrams were misunderstood, and the consequence was that a part of the members met at the appointed time, and there being scarce a quorum present, adjourned *sine die*, the most of them returning home. When

the remainder arrived they found but a mere handful, but the meeting was at once organized by the Chairman of the Executive Committee, Dr. A. A. Blount, of Geneva, who called the members to order, and nominated Dr. W. St. George Elliott, of London, for temporary President, and Dr. C. V. DuBouchet, of Paris, for temporary Secretary, and they were duly elected. Some routine business was transacted, and upon motion, Dr. James McManus, of Hartford, Connecticut, and Dr. W. C. Barrett, of Buffalo, New York, who were present, were elected honorary members. The meeting then adjourned until the next day, when it was expected more members would be in attendance. A telegram had been received from Dr. Abbot, of Berlin, who was then stopping at the baths of Schlangenbad, conveying his greetings, but announcing that he was too ill to be present. The members immediately assumed the charge of the visiting brethren, and an excursion was planned to a celebrated wine factory in the vicinity, after which a visit was to be made to Dr. Abbot. Wiesbaden is a kind of German Saratoga, and was formerly the great gambling centre of Europe. The tables have, however, for sometime been banished from both Wiesbaden and Baden Baden, and are now only permitted at Monaco. Wiesbaden is in the midst of the most celebrated wine growing district of Germany, and the vineyards extend for many miles in all directions, the vine being cultivated to the exclusion of almost everything else. Schlangenbad, which is a dozen or more miles from Wiesbaden, is celebrated for the virtue of its baths, and here the party found the venerable father of American Dentistry abroad, sadly broken in health, but genial and warm hearted as of old, and in this fairy place they received his generous hospitality, witnessed the grand illumination and *fetes* in honor of the King and Queen of Portugal, who were present, and drove back over one of the most beautiful and romantic roads in Europe, through the almost continuous vineyards, and in the soft, mellow radiance of a full midnight moon. Reaching the Grand Hotel Du Rhin sometime in the early morning hours, they found that the expected ones had arrived, and on Friday morning, August 12th, the sessions were resumed. The American visitors who had come during the preceding night were Drs. L. D. Shepard, of Boston; A. M. Dudley, of Salem; J. Taft, of Cincinnati; J. A. Watling, of

Ann Arbor ; George L. Field, of Detroit ; J. H. McKellops, of St. Louis ; George J. Friederichs, of New Orleans ; and T. T. Moore, of Columbia, South Carolina.

The meeting was called to order by the President *pro tem*, and after the newly arrived visitors had been duly invested with honorary membership, the familiar "Incidents of Office Practice" was the order for an hour or two. Nearly every one present had some peculiar case which he wished to bring to the notice of, and obtain the advice of others upon. When such an informal exchange of ideas is judiciously managed—when it does not degenerate into mere long-winded, problematical yarns, and thrasonical boasts of astounding professional success, the result of a detailed and preposterous treatment—when the members are honest enough to admit an occasional failure, and to modestly disclaim the ability to bring the dead to life, and cure the incurable—when they will consult like professional men, and abstain from covert sneers at other dentists—when they cease the too common boasts of saving the cases in which others have failed, and thus by their manner, at least, claim an offensive superiority over their brother practitioners, these sessions are exceedingly valuable, and give opportunity to look into the practice of other dentists and compare their methods of procedure with one's own, to great mutual advantage. Judging in this manner, the practice of those who were convened almost from the antipodes was, in its essential features, nearly identical. It indicated that the condition of the teeth of patients, the demands of the laity upon the profession, were nearly the same the world over. Modifications might in some cases be desirable, but in the main, climactic and other local peculiarities sufficient to require any important departure from usual methods, were more imaginary than real.

At 11 o'clock the proceedings were interrupted to allow for the exhibition of new appliances. Dr. Cohen, of Hamburg, showed an apparatus, the invention of Dr. Michelle, for illuminating the mouth. An electro-galvanic current was conducted into an exhausted glass bulb, when, by its passage through partial conductors, like bits of lime or oyster shells, they were made phosphorescent, and emitted sufficient light to allow of the easy examination of the oral cavity and pharynx. The apparatus was highly commended by those present.

Dr. McKellops exhibited the Hodge hand-piece for the dental

engine, and some corundum discs made by a process described by him in the journals some years since. He also showed a diamond disc, which consisted merely of a circular bit of photographer's "tintype," and which was easily charged with diamond dust mixed in oil. He described how, in this manner, old discs were readily recharged.

Dr. Field exhibited a carbon chisel, intended for turning up and truing corundum and rubber discs.

Dr. Dudley described his method of making paper discs. Sheets of sand or emery paper are covered upon the smooth or paper side with a coating of shellac to make them water proof, and if necessary or desirable two of them are stuck together. The discs are cut out with a gun-wad punch, and mounted upon a mandrel.

Dr. McKellops used discs cut in the same manner from rubber or enameled cloth, which were mounted and made to carry pumice stone.

A paper was read by Dr. Willoughby Miller, of Berlin, upon chemistry as applied to dentistry. He adopted the chemical theory of decay in teeth, and believed that neither spirilla, bacilis, bacteria, micrococcus or leptothrix, had any part in original decay. He thought them rather scavengers than originators; neither was he of the opinion that incompatibility of filling material had much to do with it, though the claim made an excellent stalking-horse to mask an incompatible dentist. The paper was an excellent one, and the wish was generally expressed that it might be published.

Dr. Miller, by the way, is one of the youngest of the American practitioners abroad, who has been coaxed into the profession by Cupid and Hymen, he having married a daughter of Dr. Abbot. His accession will do much to strengthen the society, as he has not only ability but thorough scholastic training.

Dr. Taft was called upon and said that there are certain bonds which hold together the elements of tooth structure, such as vitality, chemical affinity, and mechanical structure. Any foreign agent which has power to dominate these forces and neutralize or destroy their tension, induces tooth destruction. If vitality be gone, tooth repair ceases and deterioration begins. If the chemical affinities be changed, disintegration ensues, while if a force sufficient to destroy the mechanical texture be brought to

bear upon a tooth, in just such proportion as it is exerted is its integrity interfered with. It must be remembered that the chemical agents active in the destruction of teeth are in their nascent condition. It is just at the time of their formation that they are most energetic, and during this formative period they do their mischief. At the same time their affinities are changed, and the actual condition of the oral cavity is not manifest. It may be the nascent state of an acid which effects disintegration, and yet by the satisfaction of the affinities of these inchoate acids, the mouth and oral fluids may absolutely present an alkaline reaction. It was not one cause alone which brought about all of the tooth destruction and gave employment to the thousands of dentists. There was a complexity of sources, and it was their united potency which brought about such wide-spread devastation.

Dr. Barrett having been called upon, said that Prof. Taft had cited three causes for the decay of teeth: loss of vitality, solution of chemical affinities, and mechanical injuries. There was by no means a clear apprehension of the essence of vitality. It was difficult to say in what it consisted, but he believed that its loss had necessarily nothing to do with decay of teeth. They were the last portion of the human body to be resolved into their original elements after death. The teeth of mummies were discovered quite intact after the lapse of thousands of years. Teeth were found in good order long after every other vestige of the body had been lost. The mechanical bonds are very seldom interfered with in the mouth. Occasionally a tooth is fractured, but as its loss is the result of a fortuitous circumstance, and one easily preventible, it could hardly be considered as one of the fruitful causes of the frequent loss of teeth. So having eliminated two of the cited origins, it left but the one source, which was that taken as the theme of Dr. Miller's excellent paper, "Chemical Disintegration," and thus Prof. Taft's review of the essay resolved itself into a complete vindication of it.

Remarks were made by Drs. Miller, Shepard, Cohen, and Jenkins, of Dresden, after which the subject was passed.

An executive session was held, when the treasurer's report was presented, showing that the Society had upwards of three thousand francs on hand. The dues for the year were, upon motion, remitted, and an election was held which resulted in the

choice of Dr. W. St. George Elliott, of London, for President; Dr. B. Cohen, of Hamburgh, for Vice President; Dr. Willoughby Miller, of Berlin, for Secretary, and Dr. C. M. Wright, of Basle, for Treasurer. The place fixed upon for the next meeting was Ostend, in Belgium.

The visitors were rather late in making their appearance at the afternoon session, owing to their acceptance of the lavish hospitality of Dr. Terry, and others. Dr. Williams, of Geneva, read a paper upon filling the roots of teeth. He reviewed the usual methods and materials, presenting in a very lucid manner the advantages and deficiencies of each, and then sketched briefly the qualities desirable in the ideal filling. He dwelt upon the imperative necessity for a healthy condition of the root before any attempt at filling, and finally recommended oxy-chloride, or oxy-phosphate of zinc, as coming nearest to answering all the conditions desired.

Dr. C. M. Wright, having a paper upon the cognate subject of the treatment of pulpless teeth, this was also read, and both were discussed together. Dr. Wright's paper was exceedingly humorous and witty, but it went over the ground very thoroughly. He recommended the usual methods of treatment, but said that when, in some cases, he had been unable to stop the pus discharge, he had inserted a drainage tube.

Dr. Miller took exception to this practice, and thought that a discharging fistula opening into the mouth, was not the mark of the highest tide of dentistry.

Dr. McKellops recommended gutta percha dissolved in chloroform as the very best material with which roots could be filled, and said that with it those crooked, tortuous channels, that by no possibility could be filled with anything else, could be perfectly and easily stopped.

Dr. Chamberlain, of Rome, said that the trouble with oxy-chlorides was that they set too quick. He placed his chief dependence upon gold.

Dr. A. A. Blount, of Geneva, read a paper upon the comparative merits of soft and cohesive gold. He detailed his method of filling teeth, in which he uses both kinds. As soft gold best adapts itself to the walls of the cavity, he commences with that and uses it to line the whole of the periphery, filling the center with cohesive gold. He thought the skill of the

dentist, and the kind of instrument used had more to do with success than the employment of the gold of any particular manufacture. He presented his own case of smooth pointed pluggers made by himself, and took strong ground against serrated instruments.

Dr. Elliott gave the results of a series of experiments entered upon to test the different methods of introducing and condensing cohesive gold fillings. Soft instruments, like those made of gold or ivory, and wood, made fillings of very weak tensile strength. Hard steel pluggers made much stronger fillings, and if they were deeply serrated the plugs were much more difficult of disintegration. Annealing the gold more than doubled the ability to resist tension. Some kinds of soft gold could scarcely be made to hold together at all.

Dr. Williams said he had watched Dr. Blount's method for years, and his operations had stood the test of time, and proved so successful that he had himself been induced to adopt that method of practice, and the results had more than met his expectations. The main advantages were in the points used. This kind of fillings could not be inserted with the ordinary points ground down smooth. They required those which were oval in shape, and specially adapted to the end in view.

Dr. Friedrichs, of New Orleans, said that he thought he produced the same good results by a modification of the old style cylinder fillings.

Dr. Moore, of Columbia, urged that for thorough operations cohesive gold was alone adapted.

Dr. McKellops presented some specimens of platinized gold, and urged its advantages.

Dr. Shepard described the Richmond crown, and his method of setting them. He wraps a strip of thin copper around the tooth, ties it fast with a ligature, and then works a batter of plaster of paris into it, which gives him the exact size and shape of the gold band demanded.

Dr. Field gave his method of arriving at the same results, which is by a modification of Dr. Shepard's plan. He uses Weston's insoluble cement for fixing the completed piece in position.

After some further desultory discussion, the Chairman of the Executive Committee formally extended an invitation to the

visiting brethren to attend a grand banquet that had been prepared in their honor, in the grotto of the hotel, which was, of course, eagerly accepted. The Society then adjourned to convene at Ostend, the second Tuesday in August, 1882.

DENTAL ETHICS.

BY PROF. J. S. CASSIDY, M. D., D. D. S.

[Read before the Cincinnati Dental Society.]

"Give the Deserving his Due."

IN all stages and conditions of life, compensation in some form or other—past, present or prospective—is the incentive which induces mankind to labor. The great majority work for a money consideration in order to supply themselves and those dependent on them with the necessities and comforts or luxuries of this world's goods; or to enable them to retain the portion they already possess. Some few may devote much of their energies to the pursuit of a pet philanthropic object, expecting by so doing either to gain the applause of their fellows, or a greater certainty of ultimate reward in paradise. Others strive in many things for the approbation of those they love; mayhap others, more depraved, work for pleasure agreeable only to a morbid nature; others, again, labor to improve their mental and physical conditions, in a judicious exercise of brain and muscle, knowing well that their efforts will be more than doubly repaid by the consciousness of having laid by an inexhaustible store of satisfaction, and of having gained a niche, however humble, in the temple of fame. In this latter class I would place the average contributor to dental journals; and filthy lucre is seldom the recompense he seeks in this direction. An idea strikes him, original in nearly all its relations to the world of thought; he at once recognizes its value, and at once proceeds to elaborate his thoughts into a connective story, the subject and object of which shall be

to benefit his profession, and to place himself among those of his brethren who individually return at least simple interest for the principal of aggregate knowledge developed by them collectively. That idea, so developed, is really his property, and whether it be presented to the world in spoken or written language, clearly or obscurely, no one should presume to rob him directly or indirectly of the least credit, honestly his due, in this particular case. The credit of being its author is the only remuneration he receives, aside from the personal gratification of a worthy ambition. It may have been but the inspiration of an hour's time, or it may have been the result of more opportunities of leisure, during weeks and months, and, perhaps, the period of a whole year has been acquired to properly shape, and prove by careful experiments, the solidity, in truth, of the foundation upon which his idea rests.

If his investigations lead him to believe that certain theories promulgated by others are fallacious, he mentions the fact with proper respect and consideration for their rights in the premises, and now as he awards to others full justice, whether of agreement or difference in views, do all do so by him? Alas, no! and hence this brief effort of my poor brain in protest against any one doing him injustice. After a time some one of equal, perhaps superior, professional standing, anxious to see his name in print, remembers having read or heard something of an idea pertaining to the subject on which he concludes to write. His thesis grows into a lengthy dissertation, apparently the child of his own brain, and yet not a solitary truth does it contain that has not already been presented. From the beginning to the end he makes no reference to other writers or speakers who have given birth to these same thoughts; he does not even quote authorities to strengthen his position—to do so would confer fame on others, a courtesy in which he certainly does not wish to be involved—he wants it all himself, let us hope unconsciously, though a buccaneer all the same. While not acknowledging that our professional literature is peculiar in this respect, I think it is time, especially in view of the late remarkably unkind criticisms against our colleges, that we more generally adopt the practice of the truly scientific writers, and in every instance of literary effort, give, whenever required, the deserving his due.

Societies.

"Wherewith one may edify another."

PYORRHOEA ALVEOLARIS.

BY PROF. A. O. RAWLS, D. D. S.

[Report on Pathology, to the Kentucky State Dental Society.]

THE conflicting opinions relative to the causes, characteristics and treatment of this peculiar disease, are quite sufficient to convince us of the fallibility of man's judgment. They teach us that truths, whether great or small, are often hidden in the rubbish of old fogysm, or hampered by the enthusiastic misconceptions of men; therefore, in presenting a report upon this subject, I cannot but recognize the probability of error in some of my statements.

When some fifteen years ago my attention was first directed to this disease as being of a peculiar nature, I at once associated it with purely local causes, looking upon it as an inflammatory condition resulting from the deposition of salivary calculus; but after considerable treatment, based on this conviction, had yielded no very marked curative results, I naturally began an investigation in search of other causes, and to-day I present you a report of the investigation in as condensed form as possible.

ETIOLOGY.

The etiology of this disease is a study in itself. It is based, primarily, upon systemic conditions, and to my mind is one of the strongest proofs that certain medicinal agents, as well as custom, habit, environment, and diet, change or modify previously existing types of anatomical elements. It is a recognized fact that remedial *agents*, as well as other above mentioned influences, impress the system intensely or lightly according to the degrees of material susceptibility, accordingly as vital resistance is weak or strong, that is proportionately as chemical affinities are sharp, complete and abundant, or passive, incomplete and few in numbers.

Accepting, then, the foregoing proposition, though some may doubt its correctness, we will at once proceed to notice the causes productive of this troublesome malady.

First, they may be conveniently classified as of a two-fold nature, namely, hereditary and exciting, and acquired and exciting. The hereditary and acquired conditions, though proceeding from the same primary source and alike in their tendencies, may differ in degree, but both are, nevertheless, predispositions. The exciting causes are various though generally consisting of deposits of lime salts and particles of food about the margin of the gums.

HEREDITY.

As first stated, the causes of heredity, and those acquired, are primarily from the same source, so that what I may aver of the former is, to more or less extent, true of the latter. The predisposing and active causes, transmitted from one generation to another, according to the physical and chemical laws involved in the reproduction of elementary types, are few, and consist principally of systemic conditions known as scorbutic, purpural, and mercurial.

Among the acquired causes may be mentioned all of the above, but the principal and most active cause, especially in the South and West of our country, is mercury. This has been my belief for a number of years, but was only expressed to the general profession for the first time at the meeting of the American Association at Chicago in ——. At that meeting I also stated that a salt meat diet, unmixed with vegetables or acids, would cause the same, or at least such local manifestations as are present in all cases of *pyorrhœa alveolaris*. This opinion I still maintain, especially since I have observed that few, if any, persons once afflicted with scurvy, ever escape these oral lesions. Holding this view of the primary cause of this disease, and noticing the similarity of symptoms concomitant with both systemic conditions, viz: the mercurial and scorbutic, I was led to investigate and search for some element or compound common to both causes of the foregoing dispositions to whose actions we might, with some certainty, ascribe the oral lesions so peculiar to both maladies. Thus far I have but imperfectly concluded my labors,

yet I think my observations have resulted in establishing facts sufficient to justify my statements at Chicago, and to warrant further investigation based upon theories there promulgated by Dr. Rehwinkel and myself.

One of the diseases with which we associate *Pyorrhœa Alveolaris*, viz: that of scurvy, remains yet somewhat mysterious in its causes; at least, there seems to exist a wide divergence of opinion among pathologists regarding its etiology.

It was a common opinion of general practitioners for many years that a diet of salt meat, or any exclusive salt diet, would induce scurvy; and while this is true to some extent, it is also true that scurvy can result, and has resulted from an exclusive fresh meat diet.

No matter from what source the disease arises, we know that there co-exists an impoverished condition of the blood. Dr. Wm. Headland, in speaking of the condition of the blood in this disorder, says it is deficient in albumen, fibrin, and blood corpuscles, but has a surplus of alkaline salts.

Dr. Ward denies the deficiency of fibrin and regards the diminution of blood corpuscles as the essence of the disease. Dr. Headland believes that the increase of alkaline salts, no matter by what means the increase is produced, is to be regarded as the only recognizable *materia morbose*. Dr. A. B. Garrod held to the opinion that scurvy is attributable to a deficiency in the system of the salts of potash. So we here have opinions diametrically opposed to each other.

This much, then, for the conditions of the blood in scurvy. The effects of mercury upon the blood and general system are pretty thoroughly understood, though its *modus operandi* is still somewhat of a mystery. I think it has been sufficiently proven that substances, to enter the circulation through any of the tissues, either as food or medicaments, must first be dissolved in some one of the animal fluids, or in solution before they are introduced.

Mercury is no exception; for its introduction to the circulation, it must be finely divided, and it seems so finely divided that its presence, in a reguline state, is seldom, if ever, found in the circulation or secretions. Indeed, many of our best authorities state that its action depends upon a change of the metal into an oxide or chloride of mercury. It is patent to all that this sub-

stance, in some shape, produces a rapid and marked effect upon the quantity and physiological characteristics of the anatomical and chemical elements of the blood. According to Dr. Wright, Mr. Smith and Dr. Headland, where the system is mercurialized, the blood, by some destructive agency, is deprived of one-third of its fibrin, one-seventh of its albumen, one-sixth or more of its globules, and at the same time is loaded with a fetid matter, the product of decomposition. Herein, then, we have an impoverished condition of the blood to some extent, and that not inconsiderable, similar to that existing in scorbutic patients. It may, and with correctness, be said that like disturbances of the blood exist in other cachexias and dyscrasias, for example, in scrofula, syphilis, purpura, etc., but the expressions of these latter systemic impressions seem to differ widely from those of the former, as they are localized in the oral tissues. It is true that any cachexia, any dyscrasia, any impoverished condition of the blood, from any source — indeed, any weakening of the chemical affinities peculiar to the normal type of the person, will tend not only to weaken the powers of physiological assimilation, but tissues already formed, and the protoplasm for reformation of new tissue; but there are surely some morbid agencies, or some morbid agent, peculiar and common to pyralized and scorbutic patients, aside from those existing and producing similar systemic impressions, and not the same local expressions. It may be said of scurvy that the condition is owing to the deficiency of certain articles of diet, rather than to a surplus of other and different diet; but a patient can be mercurialized, no matter of what character the diet be.

And now, gentlemen, I must beg your indulgence, as well as your pardon, in pressing upon you my peculiar views relative to what I conceive to be an active principle in the causation of pyorrhœa alveolaris from both systemic diseases just mentioned. The great majority of cases of scurvy from which pyorrhœa alveolaris arises, comes from a comparatively exclusive diet of salt food, therefore salt, or some compound of one of its elements, is an active principle. Knowing that scurvy may be resultant from other exclusive diet, or from mixed diet, does not, of necessity, raise any doubt in my mind as to the probability of the formation, or rather existence of this same elementary active agency in the same undue proportion as would occur in the fore-

going instance. In ptyalism we have but one element of the mercury which caused it, which is common to salt, viz: chlorine. It may be said that ptyalism is produced with metallic mercury, or with compounds of the same not containing chlorine; but some of our best authorities claim that mercury, upon entering the system, is changed before any, but a mechanical effect is produced, and that this change consists in its being either oxidized, or, as is more frequently the case, chloridized; and since the protochloride of mercury is not soluble in water, it must be soluble in some of the animal fluids, and since in the animal fluids and tissues, mercury is much more frequently found in the shape of the bichloride than the protochloride, we again have the evidence of a surplus of chloride.

I admit that the foregoing statement, *i. e.*, that the chloride is the combination of mercury oftenest found in the tissues of mercurialized patients, is contrary to the opinion of some of our authorities and is not supported by absolute proof; but, be that as it may, we know that the chlorides of mercury are in these cases found in proportion to the degree of the mercurial impression, all things else being equal. Now it is not contended that chlorine, *per se*, is the *materies morbi*, for it seems to me evident that the general system can and has, aided and unaided by remedial agents, rid itself of any undue proportion of this element, and after such elimination had taken place there still existed a peculiar condition of the body which rendered it susceptible to the disease in question. I am, therefore, forced to the conclusion that chlorine in some of its combinations, is inducive of a radical change in the chemical affinities existing between the circulation and nutrient fluids and the tissues they nourish. So, accordingly, not only the chemical constituents, but to more or less extent, the physical types of the anatomical elements are to a degree permanently changed, and from this systemic impression, we have the localized expression at points favoring the action of exciting causes.

I am aware that arguments have been adduced to support the theory that the susceptibility to this disease could arise from any constitutional condition which weakens the integrity of the tissues—thus, that it might arise from a tubercular diathesis, scrofula, syphilis, etc.; but, so far as I have been able to observe, such is not the case, unless these diseases have been supplemented

by a mercurial or scorbutic impression, which is at times the case. It may also be said that the very element to whose influence I ascribe the changes productive of the disposition to *Pyorrhœa Alveolaris*, is reckoned of much value in the curative treatment of tuberculosis and scrofula.

Thus, it is said that persons working in bleaching factories, where they are continually inhaling the fumes of chlorine gas, never have consumption, and that consumptives are improved in health and cured who subject themselves to the same influences. It is equally true that cases of scrofula are benefited by a residence near, or a voyage over, salt water; but neither scrofula nor consumption has the peculiar systemic conditions which favor *Pyorrhœa Alveolaris*. The peculiar chemical affinities and physical types of the anatomical elements of the first, render probable a local expression within the lung tissue of the second, the glandular system; but in the latter, always within the tissues of the jaws, and probably other parts of the bony system. The exciting causes consist chiefly in local irritants of salivary calculus, and articles of food, but any force exerted upon the periosteum or gum, to induce the separation of the latter from the neck of the tooth, may act to the same end. Thus, continuous pressure upon some one or more of the front teeth, resulting from peculiar antagonism of the molar or bicuspid teeth, the loss of an antagonizing tooth, rubber or silk ligatures, and regulating appliances, all tend, more or less, to act as exciting causes. Notwithstanding, however, the presence generally of tangible exciting causes, if we will examine closely the very earliest signs and symptoms of some of these cases, we will be puzzled at the scarcity and minuteness of physical exciting causes, and in some instances fail to find even a trace of anything foreign to the parts from external sources save the saliva and such articles of pultaceous food it might carry between the already loosened gums and corresponding teeth. Neither in these, or for that matter, the majority of cases, do we find salivary nor so-called sanguinary calculus adhering to the roots, and operating as a prime mover of this peculiar morbidity. They may, indeed, be sources of intensifying expression, and continuing the action of this local expression of systemic condition, but never the prime cause.

Correspondence.

"I charge you that this epistle be read."

HYPOTHETICAL CASE.

Editor of the Ohio State Journal of Dental Science.

At the close of our last paper, Mr. Hypothetical, after a world of trouble with his rubber plate, had determined to call again on Dr. N. O. Fitz, and see if something better could not be obtained. We left him there; and now, let us hear the results of his visit. After a hasty examination, the doctor assures him in the strongest language, the fit is splendid. Thinks the trouble is in the material on which the teeth are made; recommends celluloid to him. This is the material his friend had mentioned to him in connection with rubber, but the doctor pronounces the word a little different from what his friend had. It has a pretty, pinkish color; seems strong and solid. The doctor will make his teeth on this material for five dollars. It is, he assures him, much more costly than rubber. Mr. H. thinks he will try it. Has his cast taken. Is told by the doctor he will have to let him have his other teeth to *go by*. He can "just be seated;" he will have his teeth for him in an hour. He didn't know why the doctor wanted his teeth. He didn't care much what he did with them. In just fifty minutes the teeth were done and put in. They felt, to Mr. H., very much like the others. They looked exactly like the others, only there was a corner off the lateral incisor. The doctor told him he had selected this particular pattern of tooth for him for the effect. Sometimes, he told him, these apparent defects made the case appear all the more natural. I am very sorry to say it, the doctor had lied. He knew his boy had broken that tooth getting it off the rubber plate. Mr. H. thinks he smells camphor. Glances towards the doctor's miniature drug store; notices on one bottle a label which reads "Spts. Camphor." He is satisfied. The doctor has spilled a little. Mr. H. does not tarry, pays his bill and leaves, resolved that no one shall know where he has been or what he has done. He goes home again. Wife kisses him; asks if he is sick. Thought she smelled cam-

phor. Dr. N. O. Fitz had been very careless, he thought, to spill camphor on his coat. Jim, jumping on his knee and kissing him plump in the mouth, said "I smell *cam-fire, or suthin'.*"

Mr. and Mrs. H. were invited out to dinner. Now Mr. H. always wore his teeth when invited out, and always came home hungry. At the table a lady sitting to his left asked if he had headache, and remarked something about camphor. That camphor of Dr. N. O. Fitz's must have been awful strong; but he remembered he had not on the same coat, nor vest, nor pants; in fact, not a garment he had worn when at the doctor's office. Could there be any possible connection between camphor and artificial teeth? Had the doctor perpetrated a joke on him? He felt his desire for anatomy coming over him; wished he had a microscope; would like to examine a little of Dr. N. O. Fitz' blood. His ire was but for a moment. He would try and wear these teeth as faithfully as he had tried to wear the others.

It was a little less than a year from the time Mr. Hypothetical had left Dr. M.'s office, that one day he felt a sharp twinge of pain in one of the teeth the Doctor had so beautifully filled for him. Could it be possible anything had happened to any of his fillings? He must go and see Dr. M. about this. He had two dentists now. He had been to see Dr. N. O. Fitz twice. He would make a second call on Dr. M. He presented himself. We will not attempt to describe Dr. M.'s thoughts, as he removed the miserable clump of celluloid to which were attached four false teeth. The plate was thick, very thick, and enveloped the natural teeth or their palatal surface nearly down to the cutting edges. Dr. M.'s fillings were housed up wherever they could be, and little points of celluloid were forced in between the teeth wherever it was possible to do so. An examination revealed to the Doctor white, chalky lines around several of his fillings, into which the points of an excavator readily passed. Here were failures, miserable failures, and all, thought Dr. M., because of this abominable plate. Dr. N. O. Fitz's boy had built some convenient little chemical laboratories around the necks of these teeth, in them had been generated a little nitric acid, hence these white lines in the dentine around the fillings. The plate must be thrown away at once and these teeth refilled, or he would lose them, said Dr. M. Now Mr. H. had no great amount of confidence in Dr. N. O. Fitz; and if his faith in Dr. M. was

being shaken, who will blame him. Had not he assured him if his teeth were filled they would last him for many years? And here hardly a year had passed and he was told he must have them refilled or he would lose them. If it was the fault of the plate, why had not Dr. M. been able to make for him a suitable plate, or direct him to some one who could? He tells Dr. M. he will not have anything done *just now*; but mentally he resolves he will seek elsewhere for advice. The Doctor had intimated to him that he had not been very particular as to keeping his plate and teeth cleanly; to this he pleaded guilty and resolved that in the future he would observe greater care in this respect. He would go home. He would thoroughly brush his teeth and plate and keep them clean till he could avail himself of his friend's advice, and go down to Detroit, or somewhere, and have his work done. On arriving home, he went at once to his room, took out his plate and brushed his natural teeth thoroughly. His plate looked badly—that odor of camphor he thought he detected about it, and it smelled sour. When a boy he had seen his dear, good old grandma scalding the milk pans. She said it was done to sweeten them. So he would sweeten his teeth; he would scald them. He calls down to Bridget. In a moment she appears with a pitcher of boiling water. He takes his teeth, lays them in the wash-bowl, and pours on about a quart of hot water. He thought he saw them move; he bent over and looked more closely. They began to crawl; he started back and screamed, "They are alive!" He waited a little, moved cautiously up toward the wash-stand, and looked into the bowl. He could not see them move now. They seemed to lie still. The hot water had killed them. He watched them a moment, then took up the cold water pitcher and poured on some cold water. There was no effect. He was going to put his fingers in and take them out. He drew back. They might yet be alive. They might bite him. So he took the handle of his tooth brush and moved them around gently. They gave no signs of returning vitality. When he dropped them in the bowl the plate was deeply arched; now it seemed to him, as he looked at them through the water, as if it had changed shape. They looked spread out flat, hardly more concave than the palm of his open hand. Only an optical illusion. The rays of light passing through the water produced this effect, he thought. He gains

courage; puts his fingers down into the water, and lifts his teeth out. What he thought an optical illusion proves a reality. His plate is very much flattened; he is rather pleased than otherwise. It had always rocked on the roof of his mouth—it would not do so now. He was delighted. The fit would be improved. How fortunate. Chance, if we may call it so, sometimes does for us that which all our own efforts could not bring about. He thinks of holding an inquest. Here was life; now there is certainly death. Are the causes that led to this latter event sufficiently remote to justify the calling of a jury to sit on the case? He examines the case; it seems to have been set on; but he thought he would brush his plate off and try it in his mouth. He does so, but cannot get it up to its place. He works at it a few minutes, takes it out, looks at it and smiles at his stupidity—he was trying to put it in wrong side up. He turns it over and tries it again; works at it longer this time. Thinks it fitted a *little better* the way he had it in the first time. Takes it out again. Thinks his plate is ruined. In the death struggle it has assumed a state of contortion. He reasons a little. The boiling water—heat had caused it to change shape. Heat would enable him to change it back again. He will heat it. He will bend it back just a little—not too much, but just enough. He will do for it what his dentist had not done—he will make it fit. He goes to his pitcher of hot water, and what little is left in it is nearly cold. He will light the gas jet and hold it over and heat it up. Gently he does so; takes it away to see if it is warm. It is, but not sufficiently warm to bend. He will hold it a little closer. That's where he missed it! There was a little puff of smoke, then an explosion, then a very large flame. He dropped it and screamed "fire!" retreated backwards frantically, fell over the rocking chair, gathered himself up and rushed for the door. After getting half way down stairs he called a halt, thought a moment and started back, keeping close to the wall. As he neared the door he thrust his head and neck forward, protecting his body carefully behind the door case, and peered cautiously into the room. There was no fire to be seen, but the room was full of smoke of a peculiar odor. On the carpet where he had dropped his teeth was a burned hole about three or four inches in diameter. Within this burned, blackened circle were four little white objects, which any one other than Mr. H. might have supposed to be navy beans split in half. Mr.

H. ventured into the room, looked at the hole more closely ; he was afraid of it. He had boiled those teeth, he had cooked them, and yet they had exploded in his hand and tried to burn him up. He took up the poker, stood at a respectable distance, reached over, and with the point of it touched a little something in shape like his plate, but not one half so large. It fell to pieces at the touch. It vanished. Was it alive yet, or was this its ghost? He advanced again, got a little closer, and examined it more minutely. There were his four teeth, and beside only the least bit of black and white ash. His baby smoothing iron had vanished into the air.

At this juncture of time Mrs. H., who had heard the scream of fire, and the noise of his falling over the chair, put in an appearance. Mr. H. dropped the poker and commenced grabbing frantically for that hole, passing his hands to his pockets as he did so. There was an emergency upon him. He had a duty to perform. There is a courage that overcomes all fear. The soldier, when he goes into battle, knows what it is. It is begotten of duty to self, to family and friends, to country, and, be it said, with all reverence to God. The duty Mr. H. had to perform pertained largely to himself. Those teeth might blow him a mile high. That blackened hole might drag him down to its nether depths, but see those teeth, or know what had happened, Mrs. H. never should. Mrs. H. thought, if she thought at all, that Mr. H. was crazy, as she saw him trying to put that hole in his pocket. He stood up, having harvested his teeth successfully, and tried to look composed. This attempt was probably the most signal failure of his life. He walked to the window and looked out at—nothing. Mrs. H. was alarmed, frightened. The room was full of smoke ; the peculiar odor was apparent. There was the burned hole in the carpet beneath the gas jet which was still burning ; there was the broken rocker. What is the matter, husband, dear? He says “nothing.” How did the carpet get burned? “don’t know ;” and the gas burning in broad day light? “Wasn’t put out last night he supposed ;” and the broken rocker? “The boys had been romping up stairs ;” and the terrible smoke? “He didn’t see any smoke.” Mr. H. had a fearful task before him ; had Mrs. H. to satisfy and calm down, he had himself to control, and he had that burning desire for anatomy again, to suppress, as he thought, of that Russian Nihi-

list, Dr. N. O. Fitz, who has tried to blow him up. It is sufficient for the readers of the JOURNAL to know that he successfully accomplished all of these, and that, in a few days, he came hurriedly home and announced to Mrs. H. that he had to go to Detroit that evening, a customer down there had failed. "Would he be long gone?" Didn't know, the customer had business relation in Philadelphia and New York; he might be gone a week or two. I need not say this was all false, as well as all he had told his wife in explanation of the catastrophe which had happened in the loss of his teeth. He was going really to get his teeth put in, and he was going to get the best regardless of cost. If not satisfied in Detroit he would go to Philadelphia. He had heard of the great Dr. *Whackemsome*, of New York; he might even go to him. Now, Mr. Editor, having seen Mr. Hypothetical through with some rather sad experiences with "simplified" mechanical dentistry, we may at some future time see how he fares after placing himself in the hands of a dentist, capable both as an operator and a "manufacturer of artificial dentures."

F. M.

Compilations.

"Gather up the Fragments."

REVIEW OF "UNFORTUNATE INTERFERENCE."

In Ohio State Journal of Dental Science, August, 1881.

"Hast thou faith? Have it to thyself before God. Happy is he that condemneth not himself in that thing which he alloweth."

"O wad some power the giftie gie us

To see oursels as others see us!

It wad frae monie a blunder free us

And foolish notion."

* * * "OFTEN the pulps of the permanent laterals are drawn out in this way by their adhering to the roots of the temporary teeth. Not long ago a popular physician told us he had quite a curiosity to show us, and in our line of thought. Taking out a vial he said, 'See here! I took out a tooth for a

beautiful little girl the other day to make room for a new tooth, and look, here is a curious little teat attached to its root.' And he showed us a temporary lateral with the pulp of the permanent one attached to it. Maimed for life was that beautiful little girl. There is not much excuse for such malpractice. We are not so much surprised that physicians forget, as that they presume to know when so dangerously befogged.

"Better far had he cut off the little girl's finger. Let it be borne in mind that a temporary tooth is to be removed only to make room for its own successor. Let it never be extracted on any side issue. When physicians are not posted, they should refer all such cases to dentists."

The complacency with which some presume to teach the depths of wisdom and knowledge upon subjects of which they are as innocent as three months' fetuses, is, to say the least, remarkable. The easy virtue of would-be wise men who give credence to the mere babble of pretenders, is matter for animadversion and illumination of the obtuseness with which they jump at conclusions that won't conclude.

That an old foggy M. D. should make the mistake of not being able to recognize the product of the inflammatory process set up by the economy to rid itself of a part which had become offensive by having been deprived of normal blood and nerve supply, may not be an unheard of blunder, but that an M. D. and D. D. S. should forget that the "pyogenic sac" (in the old parlance) never could include the pulp germ of a coming permanent incisor tooth, is so far from commendable as to call loudly to him to take a dose of his own prescription and study "the order of appearance in second dentition."

It is needful to call to all who are so careless in study or negligent of the facts of the case in every subject, yet dissected and recorded to the fact of the building of each socket of each tooth immediately about the germ sac in which each tooth is developed, thus making it utterly impossible for any germ to "adhere" to the temporary tooth or root when extracted. Let those who wish to correct "unfortunate interference" not "interfere" when they are *novices* and not *masters*, as proved by the zeal in condemning others, and allowing themselves to rush into fields unknown to them, and trodden only by the *very* few so faithfully, as to entitle to deal damnation to those quite as inno-

cent of the special knowledge involved as those they condemn. It is one of the rarities in histological embryology to find a tooth developed without a *bony cell* or sac in which it is calcified to render it useful as a cutter, tearer or grinder! But that a tooth belonging to the secondary or permanent set has any vascular connections with the temporary or first set, yet remains among the unknown categories of anatomy, physiology and therapeutics, a notable M. D., D. D. S. to the contrary notwithstanding.

Let us have less trash and more fact to grace the pages of the "best dental journal extant," or we shall go on groping as before its advent to illuminate the whole body.

ONE OF THE FEW.

—*American Journal of Dental Science.*

REMARKS:—The above article is taken from the November number of the *American Journal of Dental Science*. It was sent to us as an original article nearly in time for our December number. In the mean time the *American Journal*, *Items of Interest*, and *Dental Jairus*, appear with it in their original departments. We, under the circumstances, preferred to return our copy to the writer, and take the article as published, giving due credit.

A washerwoman by the wayside was asked if a bicycle had passed. "Haven't seen e'er a sickle," said she, "but— you needn't believe, I wouldn't for tellin'—but I seed a wagon wheel runnin' away with a man."

We thought we had seen something, and said so in our August number; but when a faithful friend attentively attacks our statement, mocks it with mottoes, scouts it with scripture, scolds it in Scotch, pelts it with poetry, and hounds it down with high-fa-lu-ten English, we doubt that we have seen it, doubt that we have seen anything, doubt that we are even capable of seeing. We supposed we could recognize a sac of pus on the root of a tooth; but now we think it doubtful. We imagined we could recognize normal tissue, and distinguish a tooth germ from a "pyogenic sac," but we think it quite doubtful now. We felt confident there was no sac on the root of the tooth referred to, but now we think it quite possible there were two or three. In short, and with serious solemnity, if a well read dentist whom you all know, at least you "alwato," who is well acquainted with us and our attainments, candidly concludes

we don't know a "pyogenic sac" on the root of a tooth when we see it, we feel hopefully humiliated; for any man may make a false estimate of himself, and, therefore, it may be that we are of those who "are as innocent as three months' fœtuses," and that our statement is "the mere babble of pretenders." We are sorry to think so, and would not do it but for the opinion of "One of the Few," without whose mind we would do nothing.

When so many like ourselves "are novices and not masters, as proved by the zeal in condemning others, and allowing themselves to walk into fields unknown to them, and trodden only by the very few, so faithfully as to entitle them to deal damnation," is it not refreshing that "One of the Few" rushes to the rescue and gently deals out damnation where it will do the most good? To have a friend, too, who can diagnose cases without examination, better than can those of similar education, by the closest scrutiny — yea, verily! "A friend in need is a friend, indeed;" and our brain "doth melt and drop away, with heaviness and grief," when we reflect on the possibility of such a friend emigrating to heaven, or any other distant seaport, to which his passports may assign him.

But why shiver for next year's snow? We have our friend, and our friend's attainments; and for these and all similar blessings, let us now give thanks.

But, to be serious, if "*one* of the few" believes, or if *one* of the many half believes that we ever claimed that the accident referred to could take place with all the organs and tissues involved in their normal conditions and natural positions, then is credulity condensed to a degree beyond our former ideas of concentration. But with the parts diseased for months, with inflammation sub-acute or chronic, that plastic material might be thrown out and organized, so as to cause adhesion between two adjacent organs, does not seem marvelous, except, perhaps, to eyes watching for occasion to criticize. We may have erred in saying that "often the pulps of the permanent laterals are drawn out in this way;" for we do not know, and were guessing; but the accident occurred *once*, and we are sorry.

It is said that a philosopher was publicly demonstrating the impossibility of crossing the ocean by steam, and was just ready to append the "Q. E. D." to his argument, when a majestic steamer arrived in port. But he was possibly "one of the few"

who know and can tell everything, because they are taught by the angels, and speak as the spirits give them utterance.—ED. JOURNAL.

Editor's Specials.

“Write the Vision and make it plain.”

THE AMALGAM QUESTION AGAIN.

THOUGH we find little or nothing that is new in Dr. Talbot's article on this subject, we still consider it timely and appropriate. That mercury vaporizes at common temperatures is so well known by men of science that it seems like a waste of time to prove it, as does Dr. Talbot, yet his experiments are instructive and profitable; for only a few years ago, prominent and active members of our profession were claiming that mercury vaporizes only at 662° and upward, that being its boiling point. They might, with equal propriety, set up the claim that water does not evaporate below 212° ; and then it would be hard to account for the drying of the ground after a shower.

That the vapor of mercury is poisonous is beyond dispute. No one can know it much better than the writer, who has been repeatedly poisoned thus when redeeming mercury from its oxides—once till the tongue protruded beyond the teeth for several days. It matters not practically whether or not this vapor must be combined with another element in order to work its mischief; for the other elements, oxygen, chlorine, sulphur, etc., are ready to pounce upon it at the earliest opportunity.

But, after all, it is not probable that the vaporization of the mercury of amalgam fillings in the teeth is the only or even the chief source of poisoning; for every close observer will recognize the fact that patients in whose mouths the soluble chlorides abound, other things being equal, suffer most, while those who stink with sulphuretted hydrogen suffer least. The worst cases of poisoning we have witnessed are those in which the amalgams retain their original bright color; and in these, whenever tested, we have found mercuric chloride, or corrosive sublimate. The

bright surfaces, it is true, are favorable to the vaporization of the mercury, and the two sources of poisoning acting together are able to cause the most serious disaster. This brings to mind a case which we have had opportunity to watch since 1868. At that date the family physician of Mr. H. brought him to our office for consultation. He was suffering from profuse ptyalism. All the salivary glands and his tongue were much swollen. The mercurial fetor was sickening, and so intense that it was noticed on the stairway by parties who followed him to the office. He was suffering from *tremor mercurialis*, and complained of a nearly universal aching of the bones. His physician diagnosed mercurial disease; but his patient persisted that he had never taken mercury in any form. He had not been sick before; and the family physician, till now, had been an eclectic, who discarded mercury.

As the man owned but six hundred acres of land, and it was worth only a hundred dollars an acre, and he had nine or ten teeth to fill, he could not afford gold, and he had amalgam put in, but not in our office. The teeth had been filled some weeks before we saw the case. We told the physician the composition of the amalgam plugs, and he at once urged their removal, but the poor man could not afford it. The physician abandoned the case in disgust. The poor man has endured years of agony, but has, in the last few years, had most of the amalgam taken out. He is gradually improving. A few years ago we treated him to a mild course of iodide of potassium, which had to be frequently interrupted on account of a return of ptyalism. He was a giant in development and strength; but is now a broken down, prematurely old man.

Before we had turned our attention toward dental surgery, we had a case of *paralysis agitans*. The patient was a young lady of eighteen years. She continued to grow worse under our treatment, till becoming desperate, we began a more thorough investigation. Looking carefully into the mouth we found a mass of blackness. There was no dentist accessible, so we went to a gunsmith shop, made two or three excavators, and by a series of operations, we removed seventeen large and small amalgam fillings from her mouth. She recovered rapidly without other treatment. She had suffered from ptyalism at an earlier stage of the case, and before coming under our care.

This case had baffled the leading physicians of the community, and we doubt not it is a type of numerous cases having the same etiology. Not that even recognized mercurial poisoning often manifests the form of tremor; but when we know that amalgam is used in filling teeth to the extent of tons each year, we should not be surprised at the great prevalence of nervous diseases. Physicians should wake up to the importance of this subject; for it is evident that many obscure diseases, especially of the nervous and glandular systems, originate from this source. In the case of Mr. H. of the six hundred acres, the family physician referred to, and we are all of many physicians who suspected the influence of mercury, and yet he got better only in proportion to the removal of the mercury. And not only is his own constitution ruined, but, though he has a healthy wife, his offspring are puny, neuralgic—in short, total failures.

Some strange thoughts found utterance in the discussion of Dr. Talbot's paper. One thought there could be no danger of mercurialization from rubbing mercury in the hands, because the particles are not sufficiently minute to be absorbed till the metal is vaporized. But the particles of mercury are as small when it is liquid as when it is vapor; and, space for space, more of its particles are in contact with the skin. And all who read ought to be familiar with Scheele's case, detailed by Pereira and others, in which a small quantity of mercury in a leathern bag, left hanging against the breast produced fatal mercurial poisoning.

It is very fortunate, in view of the fact that so much amalgam is used, that sulphuretted hydrogen is present in so many breaths, and cyanide of sulphur in the saliva of so many patients. In either case the mercury is sulphidized, and as the sulphide is less soluble than the oxides or chlorides of the metal, bad results are less likely to follow. In a mouth destitute of the compounds of sulphur, the chloride, (corrosive sublimate) is more likely to be formed than either of the oxides of mercury, when amalgam fillings are inserted. It requires but a small amalgam filling to contain twenty grains of mercury, which, if chloridized, will yield twenty-three grains of corrosive sublimate. Were this formed suddenly in the mouth, of course the consequences would prove promptly fatal, yet it is the very slowness of introduction that insures those fearful results sometimes seen in consequence of the administration of mercury, and

which are acknowledged and detailed as minutely by its friends as by its enemies, as in the celebrated fatal case of Scheele already alluded to. Some persons are much more readily poisoned by mercury than others. We have seen severe ptyalism caused by a single three grain pill of blue mass; and we killed a little girl of twelve years by the administration of six grains of calomel, even though followed by an infusion of senna, so as to induce early and prompt purgation. And when a dentist uses amalgam, he never knows but that he is inserting it into the mouth of one of those patients so easily poisoned with mercury, unless he has previously found by experiment that the reverse is true.

We do not hope to see the use of amalgam fillings abandoned. They come too handy for feeble men and lazy men; and, oh! the poor quacks! Like Micah, in the book of Judges, they would cry with an exceedingly bitter wail, "Ye have taken my gods, and what have I more?" But, just in proportion as the profession make attainments in chemistry and pathology, will be the decline in the use of amalgams.

We shall close as we began, by stating that the paper of Dr. Talbot is both conclusive and timely. When associated with Professor J. Taft we tried all these experiments, substantially, more than a quarter of a century ago, and they were to us so conclusive that we declined then, as we had done before, to use amalgam fillings, and notwithstanding slanderous statements to the contrary, we have declined ever since, and neither of us has ever found occasion to use, and neither has used amalgam fillings in practice.

This late discussion of amalgam shows how little close thought exists on the subject. They talk of the way Dr. Townsend made his amalgam, when they ought to remember that Dr. T. didn't make it, and always so stated, telling all the while that he got the formula and the amalgam from Dr. Wm. Hunter, of Cincinnati.

THE OHIO STATE DENTAL SOCIETY.

THE late meeting of this society was larger than usual, and in some respects better. More papers were read than at any meeting for some years, if our memory is correct, and several of

these; perhaps a majority, were volunteer essays. From outside, we had one from Dr. Talbot, of Chicago, and one from "Uncle Jerrie," of Jackson, Michigan. Should clouds and darkness obscure the mind of any reader so as to cause him to forget who our "Uncle Jerrie" is, let it be known that he is surnamed Dr. J. A. Robinson. The papers were all referred to the Committee on Publication, and will probably all appear in the volume of Transactions, to be published by Dr. Herriott, of Indianapolis, under the supervision of the committee. The paper read by the editor of the JOURNAL is the joint property of the JOURNAL and the society and will appear, possibly, in our February number. We may compile some of the other papers direct from the Transactions, endeavoring to give due credit, as we forgot to do in Dr. Dean's article and another which we took from the Illinois Transactions. We do not intend to do that way again.

Less time was wasted at the late meeting than usual. A slight disposition to be personal and *sharp* was manifested by some the first day, but they were coaxed to pursue a more excellent way. On the second and third days the society ran as smoothly as a well-oiled machine, and we hope it will be ever thus hereafter, as the sharp members had a good chance to see how much better it is to have it so.

The JOURNAL will have its own report of the discussions in the shape of a synopsis prepared by the editor. This will not interfere with the official report, and we hope it will not contradict it. We know we have failed to catch many good thoughts, and this we regret. This will appear unjust to some of the speakers, but nothing could be further from our intentions. We lacked strength for continuous attention, and besides were often interrupted.

Several amendments to the constitution and by-laws were adopted. These we regard as in the line of improvement. The number of officers is reduced to a president, a vice-president, a secretary and a treasurer. Dr. Emminger, of Columbus, is president; Dr. Lyder, of Akron, vice-president; Dr. G. W. Keely, of Oxford, treasurer; and Dr. W. H. Sillito, of Xenia, secretary. There seems to be a disposition to avoid change in the two latter offices. Perhaps this is well, as when they have become familiar with the books and papers and the routine business, they can economize the time of the society.

And speaking of officers, would it not be a good plan to elect them the last thing before adjournment? It seems that there are some in the society who expect the officers elect to buy them some postage stamps, or something—we don't know what, as we never got any. It keeps them up so late waiting for their share of the postage stamps (?) that they are too dull for active duty in the society next day; and, besides, some leave for home as soon as they have obtained their proportion of the stamps, and by postponing the election as suggested, these would be induced to remain and be useful to the last. At any rate, the present arrangement is hardly fair. The members who oppose postage stamps on principle, or who are not able to buy them, need scarcely expect to be elected, as those who like the taste of stamps will hardly vote for them, and thus the great democratic principle of rotation in office is defeated.

A pleasant feature of the late meeting is found in the presence of so many young men. The young men who neglect such opportunities for advancement will soon find themselves held in contempt by their brethren, and will be deserted by their patrons. An intelligent public is learning to know the difference between a progressive man and a drone, and they profitably act on their knowledge.

The programme for the next meeting is a good one, and the members should begin at once, especially the younger ones, to prepare themselves to make the next annual convocation a success. A good plan is to select some one subject in the programme and master it thoroughly, so as to be able to enlighten others in regard to it. Or, if there be no congenial item in the programme, take anything relating to dental science or art, work it up to perfection, and report through the Committee on Volunteer Essays. If each member would thus do some one thing well, the aggregate of advanced thought could scarcely be calculated. Select your subjects at once, and you will be cultivating them all the time, even though sometimes by unconscious cerebration.

[A number of Editor's Specials are crowded out.]

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Contributions.

"A word fitly spoken is like apples of gold"—SOLOMON.

[Continued from January Number.]

FRACTURES OF THE INFERIOR MAXILLA.

BY THOS. L. GILMER, QUINCY, ILL.

Illustrated by Dr. G. V. Black, Jacksonville, Ill.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

GUNNING'S SPLINTS.

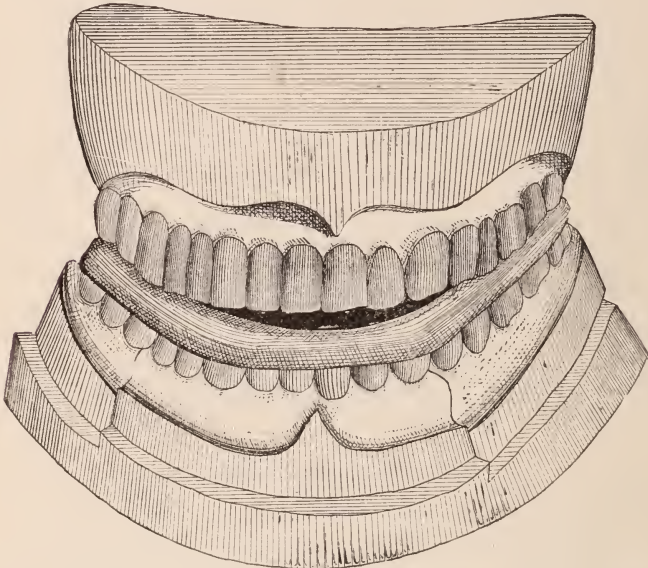
The first which we will notice by description is the original vulcanite splint, (Fig. 18) invented by Dr. Gunning, to which we have referred.

The lower reconstructed plaster jaw is adjusted to the upper, and the two models secured in an articulator, but I think (although Dr. Gunning does not suggest it) that before thus fastening them the face of the patient should be measured from the condyle to the middle of the upper jaw, and the middle of the upper cast placed in the articulator at the same distance from the joint of the articulator, as the median line of the upper jaw is from the condyle. This should be done so that in opening the bite to form the splint, (which is necessary in all forms of *inter-dental* splints)

the articulation may not be changed. The bite is only opened sufficiently to leave an aperture at the median line for the introduction of food, one-fourth of an inch being sufficient, and probably less may answer; the less the better.

A splint capping the upper and lower teeth is modeled in wax; the whole is placed in a flask and reproduced in vulcanite.

FIG. 29.



Splint (28) antagonized with the cast of the upper jaw. In this cut the splint is trimmed away in front so that food may be passed between it and the upper incisors.

The sockets in the splint should be slightly enlarged, so that the teeth will be certain to go readily into their respective places. This precaution should be observed in all forms of interdental splints formed on plaster casts, as there are generally little air bubbles in the plaster, which will fill with the material of which the splint is composed, rendering it an impossibility to get the teeth quite up into their respective sockets in the splint.

The splint is put into the mouth, and the fracture reduced by placing the lower teeth in position in the appliance. After they are in place, the upper teeth are brought into position by closing the mouth; a boot is fitted to the chin, and the jaws are securely bandaged together.

In any splint where it is necessary to open the bite as much as with this, there is danger of destroying the articulation, notwithstanding every precaution.

A modified form of this splint is at present used by Dr. Gunning and others. It is made like the other, with the addition of projections at the corners of the mouth, to which wings of metal are secured. (Fig. 20.) The appliance is put into the mouth, the lower teeth are placed in their respective places in the splint, and there secured by a bandage extending under the chin, from the wing of one side to that of the other, supporting a boot fitted to the chin. The upper teeth are held in place by a skull cap attached to the upper portion of the wing.

If either of these forms be employed at all, the rubber should be cut away so that all the incisors, above and below, will come through into the aperture left for the passage of food; by this means the distance between the upper and lower teeth is lessened, and a better opportunity offered for examining the articulation.

Splint (28) applied. Held in position by wires passed around each fragment of the bone.

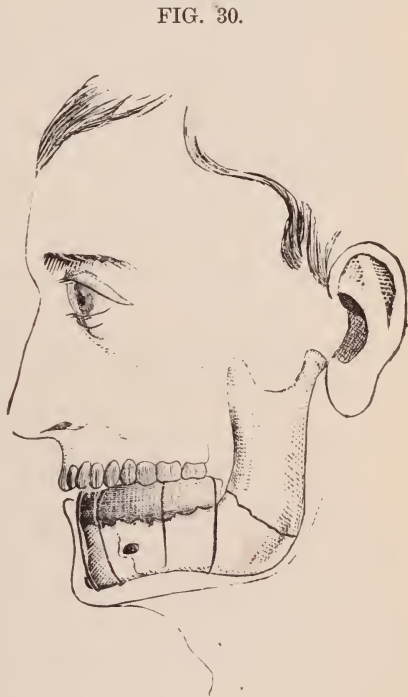


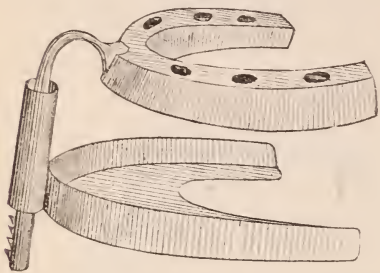
FIG. 30.

This is the splint used in the celebrated case of Secretary Seward, where a non-union of one of the fractures resulted; but the case was exceptionally difficult, owing to the age of the patient, absence of natural teeth from the upper jaw, etc. Any other mode of treatment might have resulted equally unfavorably.

With this splint, as generally used, it is impossible to know whether all the teeth are entirely up in their sockets in the appliance, as the teeth of both jaws are fully covered; while the great bulk of material necessarily inside the mouth, together with the filthiness of such an appliance, speaks strongly against it, and we

are surprised that it is still in use. We say this with all due respect to Dr. Gunning; this being the original vulcanite splint, it was necessarily crude; but he deserves much credit, as all since

FIG. 31.



Black's Interdental Splint, with single arm

there is less danger of changing the articulation; it is also less clumsy and more cleanly.

made are but modifications of the original, and improvements upon it; besides, at present he is using, as well as the older form, one much superior. It is made to cover only the lower teeth, and is secured by means of the projections and wings as before described. (Fig. 21.) This is far superior to the older methods, as the mouth is not so widely opened, consequently

POSTERIOR BAND SPLINT.

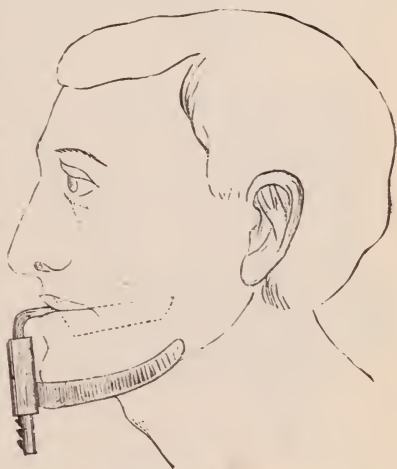
The least complicated splint that I have seen, and one by means of which I have achieved success in the treatment of single fractures, is what (for want of a better name) we may call the Posterior Band Splint. (Fig. 22.) Although it does not permit the use of the jaw, as some others do, this splint has an advantage in its simplicity, and claims favorable notice from the fact that it allows the articulation to be seen at all times. The Posterior Band Splint is made by modeling the required shape in wax on the lingual side of the cast of the teeth and jaw, extending from the last tooth back on one side, to the last on the other, and from the grinding surface down on the jaw as low as a plate of teeth is usually allowed. It does not irritate the tissues like a set of teeth, as no pressure is brought to bear upon it downward, and muscular action does not interfere to cause inflammation, as the muscles are at rest, (or as nearly so as possible,) while the splint is held securely in place by being fastened to the teeth.

After being modeled it is reproduced in vulcanite, celluloid, or gutta-percha. If the latter is used, it must have a stout, steel wire in its body, as all gutta-percha splints should have, to give

sufficient stiffness. It is also necessary to imbed in its lingual surface a thin band of metal, as without this precaution wires used in securing it to the teeth would cut into the gutta-percha and become loosened. Gutta-percha is only admissible when lack of time prevents the use of either of the other materials, both of which, possessing greater stiffness, can be made more delicate, and are therefore preferable. When

FIG. 32.

the piece is finished, holes are drilled into it so that it can be wired to a number of the teeth, or to all if thought necessary. The fracture is reduced by its application to the teeth and jaw, where it is securely fastened to the teeth by wiring. The jaws are brought together and held so by any suitable bandage. In a majority of cases, either by the loss of a tooth or space between the teeth, there will be sufficient room for the passage of liquid diet. But if no tooth be lost, or if the teeth be



Black's Interdental Splint applied.

set so closely together as to preclude nourishment, (which we think will very rarely be the case), the bandage must be applied more loosely than otherwise, leaving the space of a line between the upper and lower teeth for this purpose. No fear of poor adjustment need be apprehended therefrom, as the teeth will be antagonized at all times, except when the patient is taking nourishment.

After a week, muscular contraction will be sufficiently overcome, and under favorable circumstances a soft union will have taken place, and although the splint be removed for a short time, the fragments are not liable to be again displaced; however, it is not advisable to remove it, but the bandage may be still more loosely worn, and liquid diet changed for semi-liquid.

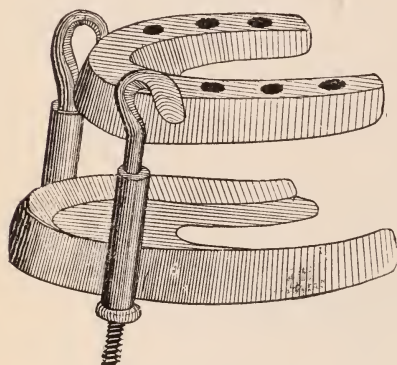
With this splint the articulation may be seen at any time after its application, and it may be ascertained whether it is correct or not, and if not, the work may be done over before it is too late. The teeth may be cleansed on their buccal surfaces at any

time, and on their grinding surfaces after a week or ten days, since after this period the bandage may be removed for a few minutes with entire safety.

OPEN BAND SPLINT.

When the fracture is double, both breaks being anterior to the rear tooth, and in single fractures, the Open Band Splint may be very satisfactorily employed in many cases. (Fig. 23.)

FIG. 33.



Black's Interdental Splint, with two arms instead of one.

Like the Posterior Band Splint, it is formed upon the reconstructed model, but in addition to the posterior plate there is an outer plate, which is made continuous with the inner, either by the same material or pieces of stout wire at its rear ends, and at any other point where there is sufficient space between the teeth. The splint is placed in the mouth, the teeth put in their respective places in the splint, the lower teeth closed against the upper, and the jaws bandaged together.

There are cases in which, owing to the articulation of the anterior teeth, this form of splint is not admissible; reference is had to those cases in which the upper anterior teeth overlap to such an extent as to leave no room on the labial surfaces of the lower teeth for the outer plate.

KINGSLEY'S SPLINT.

When there are two or more fractures in the body of the bone, the two splints last mentioned are not so well adapted as the one originated by Prof. Kingsley, of New York, (author of that most valuable work, "Oral Deformities." This work contains a few chapters on fractures of the lower jaw, which are the fullest and best extant on this subject. The dental profession is greatly indebted to him for this most valuable addition to its library.)

In making this splint (Figs. 24, 25, 26, 27) the casts are secured

in an articulator, the bite being only sufficiently opened to admit a thin layer of rubber between the teeth of the upper and lower jaws. It is modeled in wax, capping the lower teeth, extend-

FIG. 34.

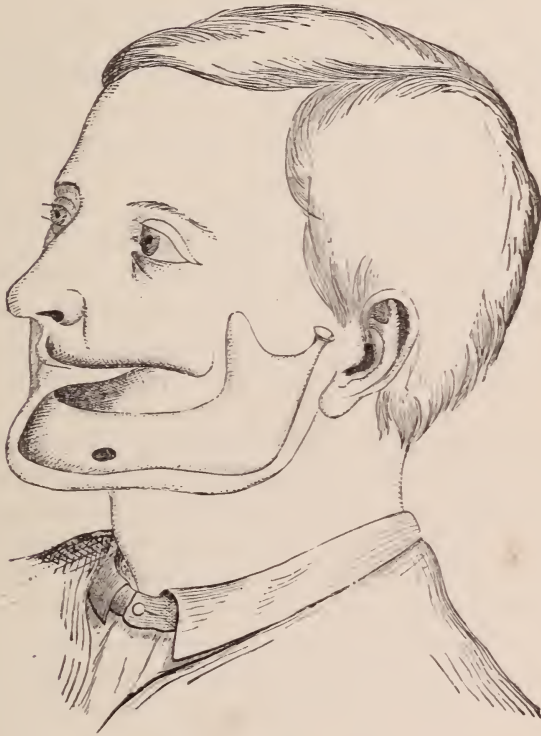


Illustration of the position of toothless jaws.

ing around, embracing the fracture or fractures, as the case may be, the upper surface being nicely adjusted to the superior teeth.

At or near the cuspid tooth on each side, heavy steel wires are imbedded in the rubber before it is vulcanized, or they are secured to it by screws or otherwise, after it is completed. These wires must be of sufficient length to allow of being bent up to clear the lip, and to extend backward on the outside of the mouth, running to the angle of the jaw, to receive an elastic or cloth band, reaching from the one to the other under the chin, and resting upon a gutta-percha boot fitted to the chin. If the elastic band is used it must be sufficiently strong to hold the teeth firmly up in their

respective sockets in the splint. After its application, the operator should see that the superior teeth are nicely articulated to the upper surface of the splint. With this splint soft food may be reasonably well masticated and the jaw is free to move; hence its advantages.

[To be Continued.]

AMMONIA—ITS RELATIONS TO DENTISTRY.

BY GEORGE WATT, M. D., D. D. S., XENIA, O.

WHEN the principle of life ceases to hold sway in organized bodies, they begin to undergo a special change. In the language of Divine Inspiration, "They die, and return to their dust." To *their* dust, bear in mind; which means that they return to their original elements. To our common progenitor it was said by Him that made him, "Dust thou art, and unto dust shalt thou return."

For convenience, the organic kingdom is divided into animal and vegetable sub-kingdoms; but the line of demarkation is not always easily defined. To call that animal which takes oxygen from and gives carbonic acid to the atmosphere, is nearly correct; but as we feel not the need of exactness for present purposes, we shall not hold ourselves under obligation to defend the definition.

The chief bulk of vegetable bodies is made up of carbon, oxygen, and hydrogen; that of animal bodies includes these and also nitrogen. Bodies of which nitrogen is a constituent are often called azotized bodies. When these undergo such decomposition as has been referred to, the process is called putrefaction; while a similar process in non-azotized substances is called fermentation. The exciting cause in each is oxygen. This mighty element lays hold on its luxuries, as soon as life has left the body containing them. Carbon and hydrogen are its favorites, its affinity for the latter being the strongest known to chemistry; yet, with this decided advantage, it by no means gets all the hydrogen. Other elements are also ready to seize it, as it is alike ready to lay hold on them; for chemical combinations are always matches of mutual affection. The ordinary state of hydrogen is gaseous, which is not favorable to chemical combination.

In putrefaction, oxygen takes hydrogen, forming water ; it takes carbon, forming carbonic acid ; sulphur, forming sulphurous, which rapidly changes to sulphuric acid ; it takes phosphorus, forming phosphoric acid. But while all these are going on, other elements are claiming their rights, and some very important combinations take place, as sulphur with hydrogen, phosphorus with the same element ; and also nitrogen with hydrogen, forming the alkali, whose name heads our paper. While this is an alkali, the two preceding compounds are acid ; and as their formations are simultaneous and in contact, they readily combine. Each has a very offensive odor ; but when the alkali combines with either acid, a much more disagreeable one results.

The living body is a constant battlefield between the forces of life and death. The nutritive functions are assimilating and building up, while opposing forces are tearing down and destroying. That is, there is constant warfare between vitality and chemical affinity. Molecules discharge their functional duties in obedience to vital force, and die from the effort, after which they are obedient solely to chemical force. But in building living organs, or tissues, the nutritive functions never violate the laws of chemical action, but each element, or compound radical, in uniting with another element or compound, obeys the laws of chemical equivalents, as strictly as they are obeyed in inorganic chemistry. Vitality is one of the modifying circumstances of affinity, while affinity is one of the supports or sustainers of vitality. The warfare, therefore, as elsewhere in nature, is only apparent, and we may truly say with the poet :

“ All nature is but art unknown to thee,
All chance direction which thou canst not see,
All discord harmony not understood,
All partial evil universal good.”

From what has been said, it follows that by noting the chemical reactions which follow the death of the individual body, much can be learned as to the results of chemical action on effete matter in the circulating fluid. Hydrogen oxidized in either case yields water, while nitrogen combined with hydrogen, in each case gives ammonia. And as we know that ammonia is abundantly given off from dead bodies rich in nitrogen, such as cadavers of men and beasts, we have a right to infer that the same compound is given off by the combinations which take

place in the effete materials within the living body. But fortunately, we are not left to inference: for common observation, to say nothing of chemical analysis, detects very readily the presence of this compound, at least in the urine, the perspiration and the breath.

Bear in mind that ammonia is always a result of death in azotized, or nitrogenous matter. Its origin in, and its associations with death, are certainly suggestive. These are at least enough to excite suspicion; and wherever and whenever we find it, we should be as inquisitive as were the inhabitants of the city where David dwelt, when the prophet came in search of a candidate for the Kingship, and say to it, "Comest thou peaceably?"

We are not to expect that death will take place in a body consisting in part of nitrogen and hydrogen, without these elements finding each other; and consequently we must regard the formation of ammonia as inevitable. But when no more is formed in the living body than can be taken care of by acids within the system, not much, if any harm results; but when such is not the case, the consequences may be serious. And just to the extent that this takes place, the individual dies. And, like other dead or dying bodies, he stinks, even when the ammonia is left free, but much more when it is combined with sulphureted or phosphureted hydrogen. I presume all have noticed a stercoraceous odor about such persons, the odor coming mainly from the breath and the perspiration.

As the effete matter is carried in the blood, the ammonia formed from its decomposition is carried in the same fluid. Its tendency is to dissolve the red corpuscles, and thus the constitution is greatly prostrated, and a very peculiar pallor results, which is not easily described, but which is readily recognized after acquaintance. It is claimed by some pathologists that only in this condition is the constitution liable to erysipelas. This may explain the popularity of tincture of iron as a remedy for this disease, as it has an excess of hydrochloric acid, and ammonium chloride, the salt resulting from its action or combination with ammonia, is highly soluble, which favors its eradication from the system. Whether or not this point in pathology is well taken, the secretions and excretions of the writer were literally loaded with ammonia last February, when he was prostrated with this dread disease.

So much for its deleterious action on the blood. In the breath it may do mischief by its action on the lining membrane of the air-cells, rendering it less fit for the transfer of gases through it ; and, to the extent of its volume it interferes with the reception of oxygen by the blood, as the atmosphere is diluted by its presence. And, like other gases, it obeys the laws of gaseous diffusion, and passes from the air-cells directly into the blood, there to work the mischief already described. But the worst results of breathing an atmosphere laden with ammonia arise from its oxidation, or rather from the oxidation of the elements composing it. According to Liebig, these are always oxidized when brought in contact with oxygen, whether it be nascent or quiescent. As before stated, the oxidation of hydrogen gives water, while the oxidation of nitrogen, whatever may take place as it progresses, finally results in nitric acid. The fact that the resulting water and nitric acid have a strong affinity for each other, Liebig calls a disposing circumstance, which tends to impart increased energy to the process.

A year ago, in this city, the writer and his wife had practical experience in breathing an ammoniacal atmosphere, while it was undergoing oxidation. After this society adjourned last year, we remained over night. A main water pipe had bursted. About 10 P. M., the water was shut off for repairs. This opened the traps of some of the lower water closets. We retired with the transom open in the hall. At midnight we awakened, both unable to speak, scarce able to open the windows, and reach the bell signal. Our air passages were clogged with the toughest mucus I ever saw. Our sufferings, for a time, were intense. We had the transom closed, and though the temperature outside was near zero, the windows opened, till the atmosphere of the room was changed. No other guests were as much exposed as we, yet, at the breakfast table the complaints of sore throats and hoarseness were numerous and earnest.

To get a clear idea of the mischief ammonia may do in the mouth we would gain by thinking, for a moment, of the character and composition of the bucal fluids. When normal, the saliva is able to hold all its constituent salts in solution. Its ability to do this depends on the simple fact that it also holds free carbonic acid in solution. Carbonic acid is ordinarily a gas, inodorous, invisible, and nearly tasteless. But when dissolved in water or saliva

it is liquid. When liquified thus, or by any other process, it is readily induced to resume its gaseous state. The water of wells and springs in limestone districts, is as clear as that found elsewhere, yet it is easy to demonstrate that it holds in solution a quantity of carbonate of lime. You all know that chalk, or marble dust, is not soluble in pure water, but when the water has already dissolved a portion of carbonic acid, it is able to dissolve the chalk or marble. By heating the water the carbonic acid is driven off in its gaseous form, and the carbonate of lime is precipitated, and adheres to any convenient solid, or falls to the bottom as a sediment. All are familiar with the incrustation of boilers and kettles from this source, when "hard water" is boiled in them.

A solution of free carbonic acid is able also to hold in solution the subphosphate of lime, called "bone phosphate," and it is precipitated from its solutions just as is carbonate of lime, and under the same circumstances.

It matters not by what process the free carbonic acid is taken from the fluid holding these lime salts in solution, they are precipitated all the same. For example, if the acid is removed by combination with an alkali, the lime salts are precipitated. Dentists are often disappointed to find their patients annoyed by deposits of tartar, even when they are diligently using alkaline dentifrices, which they have prescribed. The explanation is that the alkali combines with and neutralizes the free carbonic acid in the buccal fluids, rendering them totally unable to hold the salts in solution, and they are deposited as tartar.

When the constitution is sound and healthy, when each organ is able to, and does perform its function, the saliva retains its natural amount of free carbonic acid, and hence holds in solution the normal quantity of each lime salt, and no tartar can be deposited. But let the constitution become enfeebled, till the effete matter becomes too abundant for the excretory organs to carry it out of the system, physiology becomes pathology, and organs intended only for secretion, take on excretory work; the salivary glands, or the mucous follicles, or both, give off ammonia, the free carbonic acid in the saliva unites with it, forming carbonate of ammonia, and the saliva is thus rendered totally unable to dissolve the two lime salts, and they with epithelial matter, and deteriorated mucus, are precipitated on the teeth in the form of sali-

vary calculus, or tartar. And now we are able to see whether the disease is constitutional, or merely local. If only local, of course, appropriate topical treatment is all that is necessary to its successful management; and there is justification for those who claim to know all about the disease, yet rely, solely, on a thorough scraping for its cure.

A fertile source of ammonia within the mouth may yet be noticed. The organic matter entangled in the lime salts, and thus constituting a portion of tartar, decomposes, yielding the ordinary products of putrefaction, and consequently ammonia. This fact alone calls for the thorough scraping or cleansing universally recommended and practiced by all who are conscientious and industrious. Other reasons call for the same treatment, but the one reason is sufficient. To get rid of the ammoniacal odors of our stables, we scrape and shovel out the manure; but if the horse is declining, we scarcely rest content with this alone. The physician, who in treating zymotic disease—typhoid, for example—would be ridiculed if he should rely on the removal of the excrements as the only means of cure; and he would be rightfully censured, if he should allow them to remain in the sick-room during treatment.

It would appear, then, that we have no more right to regard and treat this morbid condition as local, than if it were erysipelas, scurvy, scrofula, or consumption. Nor will it do to rely wholly on either local or general treatment, but a legitimate use of both is the proper course.

As to the topical treatment, it has been already intimated that the most thorough removal of all deposits about the necks of the teeth, and especially between the free margins of the gums and the teeth, is necessary. All tartar must be removed, and the teeth must be polished. And if parts of the margins of the gums have so far lost their vitality that normal, healthy circulation cannot be re-established in them, they should also be removed. And the same teaching applies with equal force, to the borders of the sockets, if they too have lost vitality. There is not much danger of overdoing in this direction. Some cases require many sittings, with patience and perseverance on the part of both patient and practitioner. It is not in accordance with the plan of this paper to suggest instruments, or describe manipulations. Let the instruments be the best possible in quality and

adaptability, while judgment and skill must guide the operator and control his manipulations.

The mouth having been thoroughly cleansed, it follows to make effort to restore the lost tone to the vessels and fibers of the tissues involved. Tonics and astringents, with friction, may be used, the friction being the most important of these suggestions. Almost any wash may be suggested that necessitates friction in its application. Friction with the tooth-brush is not usually sufficient. The morbid blood is not thereby forced out of the loaded vessels. Firm and persevering friction with the finger, over all accessible portions of the gums should be resorted to at least three times a day. The superficial vessels are thus emptied, and the expelled blood does not directly return to them, but that which is fresher and more nutritive takes its place. This already detailed, or other topical treatment to accomplish the same results, is by many regarded as quite sufficient; and with this much done, in many cases nature will be aroused to accomplish the rest. But in aggravated cases, the patient will soon be found as badly off as before, if nothing more is done. If the constitution is still in such state of deterioration that the mucous follicles of the air passages and the salivary glands are called on to aid in the elimination of ammonia, the saliva cannot hold the lime salts in solution, and tartar must be deposited. The indication is therefore, to get rid of the surplus ammonia. But how?

Bearing in mind that ammonia is a result of the putrefaction of dead, or effete nitrogenous tissue, we must obviate the tendency to death. The weakened organs of the constitution must be restored to their normal power. The excretory organs, if torpid, must be aroused to do their whole duty, so that those whose duty is secretion shall not be called on to excrete. And fortunately, in many cases, the remedies needed as tonics and alteratives for weakened and depraved organs, are such as at the same time, neutralize the excess of the objectionable alkali. It is well known that the mineral acids are popular remedies in indigestion where the fault is with the liver or stomach, or even with both. While they stimulate the coats of the stomach to a proper secretion of mucus, and the normal supply of the gastric juice, they also stimulate the liver to an increased secretion of bile, and thus relieve obstruction in the portal circulation, and the consequent congestion of the abdominal and pelvic organs, and at the same time they

neutralize the excess of ammonia in the circulation, (thus saving the red corpuscles from solution,) forming with it highly soluble neutral salts, nearly or quite harmless in the blood, yet easily eliminated therefrom by the emunctories. For such purpose the aromatic sulphuric acid, called elixir vitriol, is often administered. It may be given in doses of ten to thirty drops three or four times a day, diluted with water. Or nitro-muriatic acid, called *Aqua Regia*, may be used for the same purpose, and in the same way, but in doses of three or four drops. Better results, however, may be obtained from *aqua regia* by using it as a bath. Official *aqua regia* is prepared by mixing one part of nitric, with two parts, by measure, of hydro-chloric acid; and in preparing the bath, four to six ounces of it may be added to three gallons of water. The feet may be immersed in the bath, or the liquid may be applied to the surface of the body by a sponge.

If nitric acid is preferred, the official dilute acid may be used as directed for elixir vitriol; and the same direction will answer for hydro-chloric acid, but when this is needed it is common to prescribe tincture of iron, which has in it an excess of the acid; and the iron aids in restoring the red corpuscles to replace those destroyed by the ammonia. This may be given three or four times a day, in doses of ten to twenty drops.

But often relief may be obtained by a free use of vegetable acids. Acetic acid is universally used, and often in spite of strong prejudice. The growing girl drinks vinegar on the sly, and steals pickles and eats them between meals, almost without chewing, and if she suffers from indigestion her case is cited in proof that pickles are not wholesome food. Some times we find the prejudice against vinegar so strong, on the part of parents and proprietors of boarding schools, that we have to take advantage of a Latin prescription in order to have it used by the patient. Perhaps no organic acid meets the demand better than acetic, in the class of cases under consideration. Fortunately it is cheap and abundant. But for a patient in fashionable life, it is sometimes better to prescribe citric acid in the shape of lemons, or lemonade. The additional cost sometimes insures attention, and the taste is, perhaps more pleasant. These acids may be used almost at will by the patient, but in general should be used only with the regular meals, or with lunch at a definite hour. The stomach should be taxed with nothing but water between meals. This liquid needs

no digestion, but passes unchanged into the blood. Bearing this in mind will aid in recalling the principle that should guide in dietary affairs, that anything requiring digestion as a prelude to assimilation, should be taken only at regular meals. We are thus minute because proper nutrition is necessary to the prevention or cure of the morbid state we have been discussing.

Acid fruits often afford relief, and of these the grape is, perhaps, best of all. Strawberries are excellent. Apples, currants, cherries, answer a good purpose, as in many cases they not only neutralize an excess of ammonia already formed, but they prevent excessive formations of it, by imparting a healthy tone to the digestive apparatus, and thus building up the constitution to a state of vigor incompatible with the excessive formations of the objectionable alkali.

When an aggravated case of disease resulting in the abundant formation of ammonia presents itself, the practitioner should make up his mind for persevering attention. Of course filling teeth should not be thought of till the mouth is clean, and the gums are healthy and solid. A number of visits will be needed in most cases, and the patient should be impressed with the idea that the restoration of the mouth to health and decency is far more important than filling cavities of decay. Let them know that after the periods of childhood and youth are past, many more teeth are lost by this ammoniacal degeneration, than are lost by decay. And when the public mind is educated up to understand that the most important and the most difficult part of our practice is to combat disease, they will better appreciate dental surgery, and will not estimate the value of our services by comparing the bulk of metal used in filling a tooth with that used by the blacksmith in shoeing horses. They will come to believe that mind is above manipulation.

DENTAL EDUCATION.

BY DR. C. EDMUND KELLS, JR., NEW ORLEANS.

THE subject of Dental Education is one which presents a broad field for discussion, and though that field has been pretty well ploughed, there are still places unturned by the ploughshare, and for one of those will I strike.

Pre-eminently is the general education of the young man to be considered in this connection. That all young men do not derive benefits from a course at a Collegiate Institute, is a question which admits of no debate. The liberties there allowed, especially to those upon whom a more than usually severe surveillance has before been kept, will, and do often produce bad effects which are so thoroughly imbued into the nature of the boy, that a lifetime will not serve to eradicate them. Let him who doubts this spend a few weeks in a college town, and the amount of drinking, gambling, reckless waste of time, which he will there discover, will prove appalling. But do not think that for this I would condemn all colleges; for a young man who will there cultivate evil influences and bad habits, would do so any where else that an opportunity would present—but such another good one rarely does. He who will spend his time profitably during his collegiate term, and leave in good standing, will acquire knowledge which will prove of lasting benefit.

But how many of our boys can afford to spend the necessary time for such a course, and then commence the study of a profession? The law student and literary man—yes—for all his “stock in trade” is his knowledge; he needs no training of his hands to perform skillfully an operation, as does the dental surgeon, or the years of hospital and clinical experience required by a physician, to properly recognize and diagnose a case. It would be hard to discover a young man who would find it profitable to pursue his ordinary education until the age of twenty-one or twenty-two, and then commence the study of medicine or dentistry, even though he then started with an A. B. or A. M., to launch him into his coming career. For in that case, given three or four years to complete his studies, and another in which to establish a practice, your young man reaches the age of twenty-five or twenty-six before he supports himself. Among the comparatively few who could afford such a course from a pecuniary point of view, a very small percentage would be willing to be dependent to such an age. No! a man wants to be self-supporting at the age of twenty-one or two in these days of progress, and to be that, the professional man must have entered his special course of studies at an early age.

My observations have led me to conclude that the line of study of the dental student, should be about as follows, from

which the greatest amount of good will be obtained: At the age of sixteen or seventeen a fair common school education should have been acquired, and upon passing a satisfactory examination in the branches of study there taught, he will be admitted into the office of some good dentist. If at the end of a year spent in the laboratory, no special adaptability has been manifested for the profession, a kindly talk should be given him, pointing out the difficulties in his way, advising him of his inability to ever reach proficiency in this line, and earnestly suggesting some other course for his future; and with this his connection with the office is severed. But if the contrary obtains (and which is the result we expect), and marked progress has been made, he will continue another year in the laboratory, at the end of which time, thanks to his own energy and application, and to the patience of his instructor, he will be a good mechanical dentist, or rather, as Dr. W. Warrington Evans would say, understand "Esthetic Dental Prosthesis," including, perhaps, the knowledge of making inter-dental splints, for reducing fractures of the jaw, and artificial palates, if such cases fall into the hands of the preceptor. At any rate he will be master of the lathe, spatula and blowpipe.

Meanwhile he has studied anatomy and physiology, has occasionally extracted teeth, as opportunity presented, and malleted during filling operations, and by this latter becoming familiar with the manner in which the dam is applied, napkins used, engine and pluggers handled, and has also taken hints as to manner of receiving, and deportment towards patients.

At the end of two years all this has been accomplished, when he will enter a dental college at the age of eighteen or nineteen. Here he will devote himself assiduously to all lectures and clinics, and in the infirmary department, and for the first month or so will confine himself to artificial work and extracting.

But a short time will be necessary for him to convince the demonstrators in charge that, upon the branch of plate work, he knows what he is about; and as he becomes acquainted with his surroundings and classmates, he will begin his experience at the chair. The structure of the teeth being known, the preparation of the cavities is the first step to be learned, and amalgam and temporary fillings are first made. A little practice with these materials will accustom him to his instruments, when he will commence filling the simpler forms of cavities with gold, and so

on until all manner of work will be undertaken. The correct principles of filling being fully comprehended, nothing but patience, perseverance and abundant practice stand in the way of his becoming a good operator. The first two will yield to his interest in his chosen work; the last will be overcome by the ample facilities afforded by the infirmary. Several hours a day spent in the infirmary, several in the lecture room, as many more in hard study, during two years, will prepare him for the "Green Room," and his success therein, at the age of twenty or twenty-one. And then we will have a full-fledged D. D. S. A good D. D. S. he is, though not quite as good as he will be at the end five years, 'tis true, for experience is lacking, and years of practice will be required to put a polish to the manner of executing his work.

Would you have him lay aside his excavator and plugger at this period, and devote the coming year to acquiring the degree of medicine?

I say, by all means, no! However, let us follow him through such a course and observe the results. On Anatomy, Physiology and Pathology he is already sufficiently posted to pass the coming examinations, so as to these studies he need give none of his time. In those twelve months there then remain for him a further study of chemistry, and the complete study of the following, with which we may say he is totally unfamiliar:

- 1st. Practice of Medicine, including Disease of Nervous System,
Ophthalmology, Diseases of Skin.
- 2d. Surgery.
- 3d. Obstetrics.
- 4th. Materia Medica.

And the text books to be used in that space of time are:

- 1st. A work on Practice of Medicine.
- 2d. " " Surgery.
- 3d. " " Venereal Diseases.
- 4th. " " Diseases of the Eye.
- 5th. " " " " Women.
- 6th. " " " " Children.
- 7th. " " " " Skin.
- 8th. " " Obstetrics.
- 9th. " " Therapeutics.

Is that not a startling array for such a period of time? Are the majority of young men equal to it, think you? No! nor in double that many months! That a number do succeed in obtaining the degree by one supplemented year of study I am fully aware, but I do not for a moment suppose that in such cases a rigid examination is required. But the young man whose course we are following we will concede to have grappled with the above amount of work, with such success that at the appointed time, he comes out an M. D., D. D. S., a double header as it were. What has he gained? and what has he lost? It is evident he is no Doctor of Medicine, in the full meaning of the term, his "sheep-skin" to the contrary notwithstanding. That he has some knowledge of the art we will admit, but that he is capable of going out into the world and following the profession intelligently and successfully, we do deny. However, that is not his object, nor his desire. He returns to his chair and finds in that year, during which he has concentrated his mind upon and devoted his time to his new studies, he has somewhat lost his skill and ease at the chair; and though this will soon return by practice, it will be at some cost to himself and patients, in the way of unsuccessful operations. He has also lost a year of valuable practice in manipulation, a year in the building of his reputation, and a year in establishing a Clientelle, all of which constitute far more of injury than the little knowledge gained does of benefit. At the end of his course he is not as good a dentist as he was a year ago.

The exigencies of these times demand of a man to be practical in order to be successful; and to be successful must be his aim.

Let us now consider the course of that same student, as we would advise, from the time he receives his degree of D. D. S. Leaving college he will associate himself with his old preceptor, or some other man of established reputation, thereby having some one of experience and judgment to rely upon in case of emergency. During his office hours he will ever be at his post. Leisure time will be devoted to the current medical, dental and scientific literature of the day, and partly spent in his laboratory in experimental work and study upon some subject which invites his research. Perhaps in working at some device of his conception. A certain time will be given to reading upon anatomy, pathology and physiology. If the subject is of special interest,

and opportunity presents, dissecting will be kept up for several winters.

Thus he steps from the infirmary into an office and no time is lost. At the end of five years he will have a good practice, will be thoroughly posted on all topics pertaining to his profession, will have obtained the respect and confidence of all men (physicians especially) with whom he comes in contact, and will never regret not having taken the course and graduated in medicine.

Dentistry, I affirm, is not a specialty of medicine, but a separate and distinct science, though closely allied to it. Life is too short to attempt the mastery of more than one of these, as years may be spent with either, and much yet remain to be learned upon the subject.

In the practice of dentistry the lines of several branches of medicine will be encroached upon: and the reverse will obtain. The dentist must call in the aid of the family physician, at times, to help him stem the tide: and the physician will also look to the dentist to remove obstructions, which are to him impassible barriers in his patient's road to health.

I hold the science of dental surgery to be one, the thorough mastery of which will require all the time and labor which a young practitioner can bring to bear upon it: with none to spare during these years of study, for anything like the attempt to become a thorough and practical doctor of medicine; and unless that degree of proficiency is reached, the degree of M. D., if received, is but a mockery, and must be so considered by the recipient.

FILLING TEETH.

BY DR. J. B. TULLIS, MARSHALL, TEXAS.

FILLING teeth is one of the most important operations connected with the practice of dentistry. Success in this department preserves the teeth, gives reputation to the dentist, and fills the patient with gratitude. To make a good filling is the highest ambition of the dentist who feels his responsibility, and desires the character of a first-class operator — a reputation to be coveted

by all. The operation of successfully filling the teeth so as to preserve them is attended with more difficulties than are usually anticipated, even by the operator. Many causes underlie our failures, as well as our successes, in this department of our profession. Good work does not always save a tooth. It may be properly filled, yet not saved. The character of the teeth on which we operate has much to do with the final results. A tooth that is wanting in density, and lacks substance sufficient to enable the operator to make a success of his work, is often made the vehicle to advertise his supposed incapacity and want of skill as a dentist. This one poor, frail member of the family of dental organs cries aloud its loss, while others, treated in the same way, by the same operator, and are in good condition, never even whisper of their salvation. The one poor unfortunate is all that ever speaks, and that to rehearse its tale of woe, while its neighbors are all in good condition, yet never tell what has been done for them. Who is it that has not had failures among his successes? The surgeon loses a patient after the amputation of a limb; the physician has lost patients while giving them the full benefits of skill and attention; and so in all professions, and, of course, dentistry will not furnish an exception. We are not an apologist for failures; but we believe that careful manipulation, with a proper knowledge of the nature of the materials used, and the character of the organs operated on, will greatly lessen the number of failures.

How shall we fill teeth? is the subject proposed now for consideration. Every man has his method of doing the work, and regards it as the best, because successful in his hands. There is too much to be said on the subject for a single paper.

The first step to be taken is the examination of the tooth, and the cavity to be filled, then a line of work is mapped out in the dentist's mind, and, if satisfied that his diagnosis is correct, he proceeds to execute his plans. He opens the cavity, and proceeds to remove all the decay and soft dentine, and prepares the cavity for the reception and retention of the filling material. In preparing a cavity, it is sometimes admissible to leave a layer of softened dentine over the pulp-chamber, where its removal would expose the pulp; but the softened dentine should be thoroughly removed from the walls of the cavity, as otherwise the filling would soon leak, and the work prove a failure. The softened

dentine in the bottom of a cavity, being thoroughly protected from moisture, is not liable to decay. When softened dentine is thus left, a cap should be placed over the pulp-chamber, and shaped so that it will rest on the walls of the cavity, and not directly over the pulp. Then the filling should be introduced and consolidated against the walls, all around, and when thus filled and consolidated, there is no undue pressure on the pulp, and hence no trouble is realized from this source, and we have the advantage of the tooth filled with a living pulp. For gold fillings we use gold caps; for tin or amalgam, we use heavy tin foil. We have thus capped exposed pulps, and have had success, when not inflamed; and even in cases of inflammation, we have reduced it and proceeded the same way thereafter, with success.

When the cavity is prepared, we are ready for the work of filling. If retaining pits are made we should fill them first in the bottom, and then carefully introduce our gold in whatever form we prefer, and press it closely to the walls, and fill flush to the walls as we go on with our work; and if we do this well, we will fill every part of the cavity and have no trouble to make a good finish, and thus a successful operation will crown our effort.

The same care in the preparation of a cavity should be exercised for any and all filling materials; and there should be equal care in manipulating and finishing, regardless of the kind of material used in filling.

It is asserted by some that without the "engine" no cavity can be well prepared; and without the *rubber dam* and *mallet* no good fillings can be made. We admit that, in many instances, these may and do facilitate the operation; but too much dependence is placed upon them, and hence we too often hear the cry "failure" from our patients.

There are others who say gold alone should be used; others only amalgams, or other plastic materials, and these specialists all shout "Eureka!" I think the most successful operators use all the filling materials, selecting according to the nature of the case under treatment, and the ability of the patient to pay. Some of the best fillings I have ever seen were of soft foil, and made by hand pressure. A short time since I extracted a tooth which had in it a soft foil, hand pressure filling, which had been inserted forty years ago, in the city of Baltimore. It was filled before the birth of rubber-dams, engines, mallets, and gold prepared in

present forms. It was a good tooth: the work had been well done, and was in good condition at the time of extraction. I removed the filling, and found the walls of the cavity sound, without softening or evidence of leakage.

Some fillings can be more expeditiously made with a certain form of gold in preference to others; and the dentist should avail himself of all helps to do his work easily and well. In consequence of the easy manipulation of amalgam, many failures occur. When amalgam is used, it should be the best; and it should be introduced in small pieces, which should be well united as the work progresses. Many teeth now lost might be thus saved.

The operator that gives more attention to amalgam than to gold will soon find that he has not the patience necessary for difficult gold fillings. Much more might be added, but we forbear. This much is not for the skillful, but for the young members of our profession.

PROFESSIONAL HONOR.

BY J. W. CORNELIUS, MADISON, WIS.

O, wad some power the giftie gie us,
To see oursels as ithers see us.

It wad frae monie a blunder free us.

An' foolish notion. — BURNS.

“DR. ——— is a quack—yes, should be driven out of town. He has ruined my mouth! He is far more competent to hold down the counters in ———’s grocery store than to operate in the mouth.” This is the manner in which Mrs. ——— greeted us as she entered our office a short time ago. These remarks were intended for a practitioner not many blocks from our own office—a man who is thrown into an ecstasy of delight when he hears even a distant whisper concerning the name or fame of a brother dentist. Tormented with envy, his soul has become shrivelled; and he has forgotten that man was created a social being, and it is human to err. Now here was a chance to retaliate for numerous base insinuations, but our tongue remained silent as we listened to the caustic words of this irate woman. We thought of the frailty of human nature, and how carefully we should

guard our tongue; that intelligent, thinking people would often gauge us by the manner in which we spoke of others in our profession. We have men in our profession who are never happy unless disparaging the work of others. Right in their own conceit, they detest all who think differently from themselves. It has been said with truth, "Devils blush, and angels weep, over such a disposition." These men have been aptly compared to the cuttle-fish, which emits his black venom for the purpose of darkening the clear waters that surround his more prosperous neighbor, and, like that phenomenon of the sea, the inky substance is confined to a narrow circumference, and often tends only to hide himself. Take up almost any dental magazine, and in its pages you will find a strong plea for the dental education of the people. This is all right — the public should receive all the light possible; but it is a sorry fact that in our own ranks are found many who need to be educated to a proper sense of their calling. Let dentists do their duty one to another, act like honest men, realizing the fact that we, as a profession, are oftentimes judged by the manner in which we speak of a brother dentist. If we thus act in unison, we shall soon see many of the existing difficulties we have daily to contend with abolished. We have abundant opportunities in daily practice to make damaging remarks of others in the profession; but the true man will never do this, knowing full well that cowards only are guilty of such acts.

Never speak ill of a brother dentist, no matter what his station in life may be. If you cannot speak a good word, remain silent, remembering that silence is a golden virtue.

REPLACING PINLESS TEETH AND BLOCKS.

It is often the case that we are called upon by a patient with a plate from which a tooth or block has been detached by the breaking of the pins. This accident is most liable to happen to teeth which have no support back of the gum, and the bite of the lower teeth is against the distal surface. The block or tooth may be difficult to duplicate — perhaps a carved block. The damage may be repaired in the following manner: Take your thin corundum wheel, or corundum and rubber disk, and cut a dove-tail groove, back of each tooth; then place the tooth or block in

position, and proceed in the usual manner. Additional strength may be secured by imbedding a gold or platinum pin, one end having a head, in the dove-tail, with the other end extending into the plate, in which a dove-tail groove has been properly prepared. Hoping this may be of service to some one, has prompted me to send you this hint.

J. G. H.

THE AUTUMN BRIDE.

BY J. A. ROBINSON, D. D. S., JACKSON, MICH.

ARRAYED in robes of green and gold,
The Autumn bride appears;
Displaying in her ample fold,
The harvest Summer had foretold
Would crown the closing years.

The crimson vine with ripened leaves
That deck'd her tresses fair,
Fell softly down upon the sheaves
And twined with gorgeous colored leaves
Her bounties gathered there.

She said, "my bridegroom from the north,
Where feet of man ne'er trod,
Is coming soon; I must go forth
To meet him in his frozen path;
'Tis foreordained of God.

But e'er I go I must repay
These hardy sons of men,
Whose joyous hearts have hailed the day,
And labored long without delay
To sow and reap the grain."

And while she spoke, on every side,
Where'er her glances fell,
The clustering grapes from vineyards wide,
Orchards, and yellow grain beside,
Seemed in enchanted spell.

The people blessed her as she passed;
Their joyous hearts did burn,
While she her bounties on them cast,
Gladdening the poor with rich repast,
Who blessed her in return.

Weary and faint with waiting long,
 She heard her bridegroom's blast;
 Clear, cold and shrill his northern song,
 Through leafless branches loud it rung,
 Nor whispered love at last.

The forests echo'd back her sigh ;
 Her tears came down in rain ;
 Her garments lost their silvery dye,
 The wind sighed back the night bird's cry,
 She'll not revive again.

Her faded bridal dress is torn,
 And soiled with rain and sleet;
 Shivering she sits awhile forlorn,
 The cypress, and the pine trees mourn;
 Death's work is here complete.

Now winter comes to claim his bride,
 Alas! he comes too late—
 In worn and wasted robes she died.
 Her snowy shroud he wept beside
 And trembled at her fate.

He spread a mantle o'er her form
 Of pure and crystal snow,
 Deck'd every tree, and shrub and thorn—
 And jewels spread o'er every lawn,
 And sang his wail of woe.

At early morning and at noon
 He solemn requiems sighs ?
 Death claimed his Autumn bride too soon,
 He sits complaining to the moon,
 Till fan'd by Spring he dies.

Men oft like seasons, treat with scorn
 The faithful present wife,
 Leave her forsaken and forlorn,
 Till called the wasted form to mourn,
 They vowed to love through life.

REMARKS.—The above is a beautiful poem, worthy of the pen of "Uncle Jerrie," and that is a strong compliment. His doctrine is, that what God has joined man must not put asunder; and the unhappy state depicted in the poem he regards as a type of the results of the proposed dental divorce, should the court (the dental profession) grant it, which it will hardly do,

"if the court understand herself, and she think it do." But if she do not, Uncle Jerrie and "F. M." will enlighten her.—[ED. JOURNAL.

Societies.

"Wherewith one may edify another."

CINCINNATI, January 18, 1882.

Editor of the Ohio State Journal of Dental Science:

At the 38th Annual Meeting of the Mississippi Valley Dental Association, to be held in Cincinnati, March 1st, 2d and 3d, 1882, the following programme will be presented, each subject by a paper:

Definite Causes of Dental Caries.....	J. S. Cassidy, M. D., D. D. S.
Microscopic Results of Dental Caries.....	J. Taft, M. D., D. D. S.
The Dental Pulp—Its Pathology and Treatment.....	M. H. Chappell, D. D. S.
The Possibilities of Success in the Treatment of Pulpless Teeth and Alveolar Abscess.....	A. O. Rawls, D. D. S.
Filling Teeth with Cohesive Foil.....	E. G. Betty, D. D. S.

N. S. HOFF, *Recording Secretary.*

Editor's Specials.

"Write the Vision and make it plain."

AS CLEAR AS A CLOUD.

—"art confident that thou thyself art a guide to the blind, a light of them which are in darkness,"—

AND of professed light this is a specimen, the quotation, though not full, being perfectly fair. The subject is filling the roots of teeth: "You need not be afraid of going beyond the end of the root if you are careful that you do not carry a poison or a ferment. I have gone a quarter of an inch outside, without causing bad results." Men have fallen over precipices "without causing bad results," too; but we do not advise the one nor the other, nor regard either as good practice. But again, and immediately following: "To know when the canal is filled clear to the end, pass it up the root, and get the exact depth; then take another, and pass a pellet of cotton saturated with oxyphosphate;

with a bur-drill two or three sizes larger than the canal; enlarge it; pack the oxyphosphate tight down as far as you wish, and cap with gold."

"To know when the canal is filled clear to the end, pass it up the root,"— Pass the *canal* up the root? How shall we do it? May be it will not go; but pass the canal up the root, by all means. What for? To "get the exact depth." *Up* to get the height,—downward to get the depth. But may be the canal can't be passed down the root. But let us try it. Don't give up for trifles. But after you have passed the canal up the root, and have got the exact depth, "then take another," we are told. Another what? Another canal, of course; "and pass a pellet of cotton saturated with oxyphosphate." Pass it where to? Don't know. May get him to tell in the next number of the periodical.

And now, reader, we shall not tell you who is the teacher, nor from what periodical we have extracted this much of his teaching; but if you don't "know when the canal is filled clear to the end," you must not blame us, for we are trying to give you the highest authority, and have done it, as we could prove by the teacher, himself.

It affords us no pleasure to notice such teachings in this way. We fear the periodical is partly to blame. It seems hardly probable that any one in the habit of giving utterance to his thoughts would discourse so incoherently; but the teaching has gone forth, all the same, and the mischief is thus done. To notice false teaching, or incoherent utterances, as above, calls attention to them, as plain, didactic discourse would not. We do hope young operators will not be generally taught that it is a matter of indifference whether or not a sharp instrument wounds the tissues beyond the apex of the root. Let them be taught to avoid all illegitimate and unnecessary wounding of tissues. If, after all due care, an instrument wounds beyond the apex, or any place which should remain intact, let not the case be abandoned, nor let the operator be unduly discouraged. The liability to accidents, as well as common decency, suggests that the instruments be thoroughly freed from all septic substances, even the saliva of the patient. But all the time let there be the greatest care taken to prevent accidents, and let the wounding of the

parts beyond the end of the root of a tooth, to the extent of "a quarter of an inch," or less, be accounted an accident, and not an incident of ordinary practice.

GONE ACROSS.

ON the 16th of January, 1882, a worthy Father, though not *in*, could be truly called a father *of* our profession, was called, as we trust, "to enter into peace, to rest in his bed, * * * * walking in his uprightness."

In recording the death of Lyman Taft, we feel as if writing of our own father. A member of his family in our academic days, and also when studying for a profession, we always found him truly a father. His eldest son, Prof. J. Taft, was of nearly our own age, and we could see no signs of favoritism with him. Of course we did not claim the privileges of sonship, yet we received them all the same. Hence, it is not strange that the names of Taft and Watt have been so long and so intimately associated. The genial disposition of the departed father had much to do with it.

Of his seven children, but four reached maturity, and but two survive. These are well known as Drs. J. and C. R. Taft. His only son-in-law is a dentist, as are five out of his six grandsons.

Mr. Taft's ancestry dates back, in the family tree, to the landing of the Pilgrims, and the family has been characterized by temperance and longevity. The departed father had reached the advanced age of eighty-seven years, and had lost interest in things of earth, and was ripe for change.

He possessed great activity of temperament, and, perhaps, never was surpassed as a conversationalist. As an extempore speaker he had few superiors, and his voice was eloquent in behalf of the downtrodden and oppressed, in days when it was dangerous to be thus heard,—when the cry of "Abolitionist!" was enough to gather a mob. And such a scene we saw when our departed father was in the prime of middle age, and a furious mob had howled down the other speakers,—how calmly he stood, their wild threats and cursings apparently giving him fresh inspiration, till, by sheer force of character, he compelled them to

listen, and to quietly disperse at the close of the meeting. And, when weighted with the burden of more than the "threescore and ten years," his voice was still lifted up in the cause of sobriety and temperance, in Southern Ohio, and wherever he could reach.

For a number of years past he has been almost helpless. He resided with his oldest son, Dr. J. Taft, several years, and the last four or five with his other son, Dr. C. R. Taft, of Wyoming, where he has been kindly and faithfully nursed in his helplessness, with a fidelity and devotion that insure their own reward. All that a son and daughter could do was done for his comfort; and when life's fitful dream with them draws toward its grand awakening, may their last days be made as comfortable.

"Then Abraham gave up the ghost, and died in a good old age, an old man, and full of years; and was gathered to his people. And his sons, Isaac and Ishmael, buried him." And so, the evening of the 18th, the two sons of our aged friend brought him and quietly laid him (not in Machpelah), but in our beautiful Woodland Cemetery, beside their mother, in Xenia, Ohio, in the full hope of the blessed resurrection, not sorrowing that the heavenly Husbandman gathers his fruit when ripe.

LITERATURE OF THE LOUSE.

No subject is too large, and none is too small, for a poet. It would seem that, in the dental profession just now, in the direction of poesy, there is that degree of unanimity which pervaded Hood's good man and wife, when they thought they had heard a burglar below stairs:

"One impulse moved both man and dame,—
He seized the tongs, she seized the same,
Leaving the ruffain, if he came,
The poker and the shovel."

And there seems to be a revival in favor of Burns. He addressed a poetic epistle to a louse—a small subject—yet it was a religious louse, was at church and had for its pew a young lady's bonnet. We have the moral of the louse poem in a compilation for our January number, and it has gone to the ends of the earth; again we have it in a contribution in the present number, and we have seen it, within a month or two, in several other dental communications; and, lest some reader should overlook it, and it

should be quoted into oblivion before we get the use of it, we insert it at once, as follows:

“O, wad some power the giftie gie us,
To see oursels as ithers see us!
It wad frae monie a blunder free us,
An’ foolish notion.”

And now, lest it be lost to literature, we advise each one to memorize it before reading further. Would it not be well to have it printed on cards, for the use of schools? Or can we depend on the dentists to preserve it to posterity? Should they kindly undertake it, we must all remember that, though they may be louse-y, they are by no means lousy; for, as a craft, they are as tidy as tailors. But, seriously, it is singular that so many have simultaneously selected the same stanza. They would better try Burns’ mouse next; and in process of time they may reach Tam O’Shanter’s mare.

ORIGINAL ARTICLES.

WHAT are they? and what entitles them to the appellation? A difference of opinion seems to exist here. A writer sends us an article for the JOURNAL for a certain month, giving us to understand that it is for our original department, yet he has sent the same article to another periodical to appear in the number for the month preceding. If both periodicals appear on time, we are a month behind, and the claim that the article is original, as it appears in our journal, seems absurd. Yet a friend whom we esteem highly, calls our sentiment a mere whim, when we decline his article as original, which he has possibly sent to at least two or three periodicals before sending to us. It does not follow that we decline the article totally; but if we use it, we prefer to take it as a compilation from the periodical which has first published it, giving due credit. Nothing short of this do we consider manly and honorable; yet we do not reflect on the motives of those who hold different views.

An article may appear as original, however, in two or more periodicals, by arrangement between the writer and the journals. An example of this is seen in the December numbers of the *Dental Register* and the OHIO STATE JOURNAL; Dr. Blount’s article appears as original in both. The author felt friendly toward

and wished to favor both periodicals; and some of his friends read one and some the other periodical. He requested a compromise which was easily brought about, as the two journals were friendly and free from jealousy.

Cases may occur also like the action at a late meeting of the Cincinnati Dental Society, which authorized any journal that desired to publish the papers read.

It is the wish of the JOURNAL to treat all writers and contributors with proper and becoming respect. These remarks are made for the purpose of bringing about a correct understanding in reference to the rules that govern in accepting or rejecting contributions. Each article must fairly belong to the class it claims.

OXIDATION.

OXYGEN is truly a busy-body, yet, like the devil, who, bad as he is, is often blamed when others are guilty, it is frequently charged with chemical action when it would find no difficulty in proving an *alibi*. It is almost universally blamed with blackening the amalgam fillings in the mouth, while its fellow-sinner, sulphur, is generally the guiltier rascal. It is charged with corroding tin fillings when they are thus found, yet chlorine is the chap that does the mischief. Out of the mouth, too, it is equally blamed. In the report of the Committee on Chemistry and Therapeutics, made to the Georgia State Dental Society last May, the chairman tells, as reported in the *Dental Luminary*, that he put the several amalgams tested in a solution of sulphuret of potassium, 80 grains to the ounce. He tells us that this experiment was "for discoloration or oxidation," as if the terms were synonymous. All tested but two changed color, and of these two, the report says, on the testimony of this single experiment, "they will not oxidize." King's Occidental was not discolored. But sulphuret of potassium is not an oxidizing re-agent. Those discolored were sulphidized not oxidized, as the re-agent is composed of sulphur chemically combined with the metal potassium. The affinities governing the reactions are that of potassium for the oxygen of the water, and that of sulphur for the constituents of the amalgam. As fast as the sulphur lets go the potassium it siezes the amalgam, and the potassium decomposes the water by

taking its oxygen, thus forming potash, while the hydrogen of the water escapes as gas.

This is only a specimen of the indefinite manner in which chemical action is referred to by our profession. In an editorial in *The Dental Brief*, Vol. I, No. 1, we are told that "the reagent sulphuret of potassa contains both sulphur and oxygen;" but he must refer to oxygen in the water in which the salt is dissolved, for it is probable that by "sulphuret of potassa," he means potassium sulphide or sulphuret of potassium, as sulphur will not unite with potassa which is the oxide of potassium. These tests are satisfactory as to whether or not sulphur will corrode the amalgams, but they tell nothing in reference to oxidation. But this is of slight importance, in view of the fact that in nearly all cases of discolored amalgams within the mouth, sulphur is the chief corroding agent.

We have used these two cases in illustration of the indefiniteness of thought in reference to chemical action which pervades our profession. When ready to write these were before us; others were near and abundant; one answers our purpose as well as another, and we hope there will be greater clearness of expression.

TRUISM.

IN one of our periodicals we are told that "it is not best to place too much faith in what the leading men in the profession assert." Is it best, or even good, to place *too much* faith in anything? This is akin to the oft-asserted statement that "whisky is good in its place," intimating that other things, or at least some things, are good out of their places.

A member of the profession, says, "I was worked to death by using tin-foil." "It is not best to place too much faith," or any at all, in this statement. It is not a truism nor even true, unless taken at par with the death of the deacon's ram that died in trespasses and sins.

Some one does "not recognize galvanic action but chemical action in caries." Did anybody ever recognize galvanic action as an exciting or immediate cause of caries, or as a cause otherwise than as an excitor of chemical action?

We are told, too, that "the majority of teeth that come to

us are defective." Certainly, that is why they come to us. "They that be whole need not a physician."

Also, "we should not be afraid of radicals nor extremists." Most certainly not: they are usually good natured.

A farmer's boy was sent after the cows. He returned without having found them. His father expressed a doubt as to his diligence in the search. "Why, Pa," said he, "I went on and on, and on to Sykes's lane, and plumb through it, and then I scattered." Some of us scatter before we reach Sykes's, therefore, we'll stop.

"DENTOLOGIST."

IN a special some time ago we spoke of a party being not only a dentist but a dentologist. "What's the difference?" inquires one. Another suspects sarcasm. But no! the word is good, and is legitimately used. A dentist is supposed to understand and practice dental surgery. A dentologist can and does talk or discourse about dental science. Many good dentists are not dentologists, and it is feared that a few dentologists are not very good dentists.

MISSISSIPPI VALLEY ASSOCIATION.

THIS, the mother of them all, that is, of the dental societies, will hold its meeting so nearly simultaneous with the issue of our next number that it will be impracticable to say anything about it then. There is good reason to believe that the next will be a better meeting than has been held by it for several years. So many State and local societies sprang into existence that the parental institution has been rather neglected. The old friends have waked up, and the young members are at work to make the next meeting a decided success. The Executive Committee is putting forth extra efforts, and it will be a misfortune to any live member of the profession to miss this meeting. If it does not show more life than most of its recent meetings we shall acknowledge that we are not good on "the signs of the times."

The JOURNAL expects to have its own report of the discussions, prepared by the editor if health proves sufficient; by a

substitute, if otherwise. The Commencement exercises of the College occur the same week, which is an additional inducement to attend. We hope to see most of the members and many visitors.

CLOSING THE COLLEGE SESSIONS.

WE shall regard ourselves as under special obligation to the respective Deans of these institutions if they will see to it that we promptly get at least a brief report of the closing exercises. We can't visit many, possibly not any of them, however much we would delight to do so; but it will not be much trouble to prepare a report of each. When the Dean is too busy or too tired, let him designate a deputy for the special service; and thus the readers of the JOURNAL will be gratified, while the notice is, to some extent, an advertisement of the College concerned. Brethren, remember us.

A MISTAKE—MIGHT CAUSE MISUNDERSTANDING.

NEAR the top of page 18, of the transactions of the *Illinois State Dental Society* for 1881, published by Ransom & Randolph, we read, "The Secretary received a reply from the Secretary of the Iowa Society, stating that Dr. Ingersoll's paper had already been given for publication to the *Dental Register*, and to the OHIO STATE JOURNAL OF DENTAL SCIENCE." The paper has not appeared in the JOURNAL because it was to the *Missouri Dental Journal* it was given. There is probably an error in transcribing. We are not apt to reject papers from Dr. Ingersoll, and our readers may wish to know it.

IMPAIRED LIVES.

THE Insurance Year Book for 1874 has this remarkable piece of information:

"The forthcoming medical report of the Provost Marshal General's office contains the results of the medical inspection of 605,000 men, during the war. Fifty different nationalities are

represented, and the average ratio of unfitness is 257 per 1,000.

"The negro stands first in point of health, and after him the Canadians and Scandinavians. The Germans and Irish come last. The Germans, though with the largest chest measure, proved the most unhealthy. More disqualified persons were suffering from disorders of the digestive organs than from any other. Outdoor people were healthier than indoor. Fifty-two per cent. of professional men were unfit for duty, and thirty-five per cent. of unskilled laborers. But the average record shows more favorably than either England or Germany."

Life insurance companies are usually wide awake to their own interests; hence they seek for vital statistics from the most reliable sources. But dentists are, or ought to be, as much interested in the relative vital forces of the different nationalities as insurance men. Unless such facts are duly considered, we are constantly liable to err in practice.

The information obtained from this source is not in accord with popular sentiment. We have often asked the opinion of our friends, and, in a large majority of cases, the German race is selected as the healthiest; but it is not worth while to put popular opinion against the testimony of sworn officials. But an epidemic — as of cholera — bears the same testimony. Those unwilling to believe that the Germans are a deteriorated race, explain the fact noted above by saying they have suffered by emigration, yet the statistics show the reverse.

That the negro, which includes the mulattoes, etc., stands first in point of health, seems remarkable till we reflect on the fact that they have been bred as cattle, with direct reference to health, for centuries. Next to the negro stands the Canadian, and next to him the Scandinavian; the Scotch and our natives ranking about fifth and sixth.

In caring for the teeth it will never do to ignore the questions of vital force and impaired life. When, for the sake of teeth, constitutions are to be built up, the knowledge obtained from military statistics is valuable, in enabling the dentist to make a correct start. If he concludes that, because the German has a large chest, large bones, and even large brain, he is therefore a strong man, with good recuperative power, he will labor under a sad mistake — sad for his professional reputation, and more sad for his patient. Life insurance companies give close attention to

their interests; and if such information is valuable to them, it is even more so to dentists.

According to these facts, in making our estimates of vitality we take into consideration the question of nationality, as well as the ordinary indications of health and disease; and this should be done intelligently.

SELF-CONCEIT GONE TO SEED.

THE *Items of Interest* almost exhausts its vocabulary in an effort to show that the editor of this journal, from his age, long experience, learning, reputation and position, is almost, if not altogether, the most competent man in the dental profession to estimate and properly understand the facts of any case in dental surgery that may come under his observation. And yet it claims for its editor ability to judge the facts of a case without seeing it at all better than can the editor of the JOURNAL by the closest observation and the most careful scrutiny. This is self-complacency in the superlative degree. But, no! on sober, second thought we have concluded that the editor of this journal is not the knowing man that the *Items* represents him to be, while the *Items* knows everything; and if he does n't, he can get "One of the Few" to teach him. Then we can get him to teach us, for he'll not need to see a case in order to describe it.

CONFESS YOUR OWN SINS.

For only such confession "is good for the soul." Through St. John, we learn that "if we confess our sins he is faithful and just to forgive us our sins." *Our* sins, not those of our neighbor. A is always ready to drop to his knees and confess that B, C and D are sinners of the deepest dye; but this is not the apostle's recipe. The *Items of Interest* man lets a contributor expose himself and a comrade in reference to a fearfully reckless use of chloroform. Then, in an enumerated series of "Remarks," he denounces them with all the energy of his editorial vengeance—calls their action "empirical," describes them as "groping in the dark," etc., etc., growing still fiercer as his "Remarks" progress, reminding us of an escaped slave's letter to his late master, who, in

directing his amanuensis, says : " Dear Massa : G—d d—n you ! and now get sharper and sharper till the letter is full." And, after all this, the *Items* man says : " We have nearly all been guilty of the same imprudence."

In the name of an honorable, intelligent profession, we deny that we have been thus guilty.

A juvenile father, who had been reading Darwin, said : " Wife, our baby is descended from a long-tailed, hairy animal that climbed trees—we all are." " Keep to your own pedigree, Jack," said his wife ; " I'm not descended from anything of that kind, and baby takes after me." The *Items* has our full consent to detail its own devilish deeds to its heart's content ; but we are not willing that it shall saddle the same on the rest of us. We are amply able to do our own confessing.

WHY, NO !

MR. "NINE," of the *Jairus*, we've not read the story of Goliath making " merry over the size of David and his sling." We've always understood he got mad and cursed about it, rather despising " the day (or the man) of small things ;" but that need not prevent our admiring a large editorial force. But who's laughing, Mr. " Nine ?" The JOURNAL always mourns, even if it has to borrow sackcloth and use coal ashes.

FOR FRESH COLD IN THE HEAD.

THIS is taken from the *Southern Medical Record*, and is highly recommended. We have not tried it. We regard the matter as quite practical and closely related to operative dentistry, for with a cold in the head a man is not fit to work over a refined, sensitive lady, nor does he feel like working over anybody else :

R.	Carbolic acid	3 i
	Absolute alcohol.....	3 ij
	Caustic solution of ammonia	3 i
	Distilled water.....	3 iij

M. Make a cone of writing paper ; put a small piece of

cotton in it; drop on the cotton ten drops of the mixture, and inhale until all is evaporated. Repeat this every two hours until relieved.

DENTAL SOCIETIES.

HAVE they done any good? And if so, how? and what?

The wise man, who called himself "The Preacher," speaks of iron sharpening iron, and the faces of friends being similarly sharpened. Let each reader find the text for himself, as in doing so he may find others that will do him good. (NOT ORIGINAL.) All members of our profession who have habitually attended the meetings of dental associations must have observed and experienced the mental stimulation resulting from contact of countenances and the exchange of thoughts that could not have taken place but for the meetings referred to.

Within the memory of some still living, there was a time when dentists were almost equal in knowledge and professional attainments. And this equality was at or near the bottom rather than at the top of the professional ladder. And now let each think for himself as to who, and which class, has climbed up from this lower plane, those who attend the societies, or those so busy that they can't spare the time to do so. Look over the lists of dentists, a state at a time, ascertain who lead the profession in each, and then look at the Transactions of the respective state societies, and see if you don't find their names on the list of members. This would be still more evident if we would mention names, even in but a few states, but it would be dangerous to try this, as we could hardly fail to do injustice, memory failing to recall, and space refusing the room, for all worthy of mention.

Very many of the appliances now regarded as essential to proper practice originated from hints given at these associations, which found lodgment in brains more directly inventive than the brains of those giving the hints. A question has been asked, and at the time may have failed to receive an answer, yet the very inquiry stimulates one or more minds to research and investigation. These minds often fail to find rest and peace except in solving the question. It presses for an answer, it delays the twilight nap, or postpones the night's sleep. It hurries the sleeper from his morning couch. It haunts him by day, and harasses

him by night. It seems to be armed by mental barbs and prickles that prevent retreat. Onward and onward it propels the thinker, till the mental darkness is passed, and relief is gained only in the daylight of a full solution of the question.

A prominent and efficient member of the profession accomplishes a difficult operation at the society's clinic. All the ambitious, hopeful young members are thereby stimulated to greater effort. What man has done man may and can do, they fully believe; and they have seen a man do this, and therefore they all try to do it, and, as honest, earnest effort always has its reward, they nearly all succeed. Next they demonstrate the same at their local society; and the members here, though indifferent before, are fully aroused and incited to greater efforts with better results; and thus it often happens that the most common-place operators in the profession are, in a year or two, performing as fine operations as any in the land, yet, without the stimulus of association, they would have been content to plod through life with the monotony of a blind horse in a bark-mill, displaying as little of science and skill as their equine counterpart.

We could fill pages of descriptions of such things which have passed under our own observation, clearly illustrating the principle here set forth. At an early day, in the history of the Mississippi Valley Association, Dr. A. M. Leslie called attention to the fact, that gold welds at common temperatures, and to verify his statement he referred to the fact that gold beaters, by using a cane knife, weld fragments together to make full sized leaves, the welding being so perfect that the joint escapes observation. This was on Friday, and early the next week Prof. J. Taft filled a tooth for the writer depending on the welding principle to hold it in place. So exposed was it that a Professor in a dental college said if it would endure two weeks' use he would yield the point, though he did not believe it was welded. This was made with Taft and Watt's crystal gold, and lasted about twenty years. Soon after, Prof. Arthur called public attention to the principle of welding foil in filling. But so little credence had been gained in 1856, that Dr. Taft and the writer were insulted for setting up the claim that gold is a welding metal, in opposition to the opinion of Prof. Chapin Harris, who had just maintained the opposite view.

The warm air syringe was invented in five minutes or less,

as a result of a conversation at the last meeting, but one of the old American Dental Society. A prominent member of our profession, in talking to three of his fellow members, said in substance, "I would give a fortune to any man who will show me how to dry a cavity in a tooth. I don't mean how to dip most of the water out; but when I say dry I mean *dry*." One of the three said, "Why, Doctor, that is easy. Throw a current of warm air into it." "That will do it," said he; "but where's your instrument?" "I shall make it when I go home," said he; and he did. That instrument, lacking its finest point, was exhibited at Hope Chapel, New York, in 1856, and from there passed into the hands of Dr. John B. Rich, of New York.

In 1855, Dr. J. Douthett, who had just graduated, was made a member of the Executive Committee of the Mississippi Valley Association, and in making out a programme for the discussions at the next meeting, he inserted a question calling up the *modus operandi* of creosote, tannin, nitrate of silver, arsenious acid, and other topical remedies used in the mouth by dentists. At this time, it may be truly said, these medicines were used empirically; yet, in two or three years, as a result of the discussions and investigations awakened by this question in the programme, there was as much clearness of thought in this direction as in any other.

And so we might go on indefinitely. The above are merely illustrations which happened to first strike our mind. The dental engines, hand pieces, forceps, lathes, chairs, scientific principles, such as the nature of caries, all—all have come from those who thought they could not afford to waste their time by staying away from the meetings of the societies.

There is an unfortunate class in our profession content to allow others to do the thinking. Its members profess to rely on the published transactions and the reports of the discussions, claiming that they thus can gain all the advantages which they would gain by personal attendance. But even if it were practicable to report all the good thoughts and suggestions, they would still miss the best points, and would fail to gain the most profitable and important advantages of association, resulting from the stimulus of contact, the clashing of mind with mind, alluded to above. A set of loafers might as justly claim to fare as well as the boarders, because they sat on the porch and smelled the

victuals—as the boarders ate. Dealers in live stock often feed corn-fodder—stalks and ears—to their cattle, giving them all they can eat, and after a lapse of a few days, they remove the cattle to another enclosure, and put hogs in, to glean after the cattle in the first enclosure. It is claimed that the hogs are content with, and even relish their second-hand nutriment; hence it is possible that some dentists enjoy the mental pabulum which has already passed through the process of mental digestion in the minds of their brethren. If, in accordance with the doctrine of the transmigration of souls, our spirit shall depart in the direction of quadrupeds, we hope to board with the cattle, rather than the swine.

But our intent was to write but a single page; and, lo! the pen has overflowed.

TROUBLE AND SATISFACTION.

AN eccentric friend of our boyhood used to lament that this mundane sphere is a world of trouble and satisfaction. As an editor, we have found it such in getting out the present number. In addition to the fact that the work was done from the invalid chair, our good pen—the best we ever had—gave out. Nothing seemed to go right—perhaps we might say go *write*—afterward. Besides, our spectacles had rebelled; and all but young folks know what a trial that is. But our old army friend, Captain George Canfield, who has after years of absence, returned to Xenia, came to the rescue, and “conquered a peace,” by readjusting our glasses and fitting in the finest periscopic pebbles, so that we can now “see oursels as ithers see us”—indeed, can see as sharp as a school-boy. And so we can conscientiously advise all who are not “eyes right,” to march right up to Captain C.’s office and settle—their difficulty.

CROWDED OUT.

A LARGE number of our Editor’s Specials are crowded out of this month’s JOURNAL; but our readers can expect the full quantity in our next.

Correspondence.

"I charge you that this epistle be read."

PAPAIN THE NEW PULP DIGESTER.

Editor of the Ohio State Journal of Dental Science.

ALTHOUGH the inhabitants of the West Indies have always had recourse to the leaves or fruit of the pawpaw to make meat tender, by either wrapping the meat into the leaves for a little time or by boiling a piece of the fruit with the meat, yet it never entered into the idea of any one to employ it in dentistry. That has been left to Dr. VanAntwerp, for which he will, I believe, be proud, as I think it will be a valuable addition to dental therapeutics. Directly on seeing your report in the October number of your JOURNAL, I determined to give it a trial, which I soon did, on a little girl, whose right inferior six-year molar was badly decayed, with pulp exposed and partially dead. I first fitted a metallic cap, leaving a good space between it and the pulp, and, after drying the cavity, made an application of the fresh juice of the pawpaw, fixed on the cap and filled the cavity with gutta-percha. I allowed it to remain twelve hours, after which I cleansed the cavity, covered with oxide of zinc and glycerine, flowed over that oxychloride, and temporarily filled the remaining cavity. Three weeks after, I found the tooth without pain, and with every indication of a living pulp. I have since made an extract of the leaves and stems, and have treated four cases similar to the first, with good results. I shall continue its use, and let you know later my success for publication. Your interest in the discovery is my excuse for writing you this.

I remain, Sir, Yours Very Truly,

S. W. SPARROCK,

Pointe à Pitre, Guadeloupe, W. I.

November 29, 1881.

DELAWARE, OHIO, November 3, 1881.

Editor of the Ohio State Journal of Dental Science.

I send you the following for what it is worth; if useless, it will occupy but small space in the waste basket.

Having experienced considerable difficulty in keeping the packing tight around the screws of my New Mode Heater, I have at last succeeded, by the following method: First, cut a washer out of any good rubber packing, allowing the screw to work *freely* through it. Place that in position, after having thoroughly cleansed the seat. Next cut a washer out of block tin, rolled to $\frac{1}{16}$ inch thick. This washer must be made to fit the seat nicely, without impinging on the screw. Place this washer on top of the rubber one previously inserted. Screw down your caps, and you will have no more trouble from leakage. I shall apply the same principle to the door, if it ever needs it.

Respectfully Yours,

W. MITCHELL.

HARRISBURG, PA., January 5, 1882.

Editor of the Ohio State Journal of Dental Science:

Having taken heed to the charge of that prince of Apostles, and read the epistle, it is now my desire to extend my best wishes to F. M. for a prosperous and happy New Year. While here I might add a word or two, and say I have much sympathy for "Mr. Hypothetical;" but I have a good deal more for his poor baby and that dog, and I do hope that they will get used to the "peach," if the father and master never does.

We have "Fritzes" and "Mr. Hypotheticals" in this section, many of them; indeed, it seems they are to be found in abundance, wherever the sun shines, and never alone—where there is a "Fritz" there is a "Mr. Hypothetical," and *vice versa*. It always was so, and I believe it always will be so. It's the "Hypotheticals" that make the openings for the "Fritzes," and the "F.s" to go in. I have just received a bit of evidence of the existence of another "Fritz," in another section. If "Mr. H." does not get *use to it*, he might visit this "Fritz." There he would have an opportunity "to select for himself, both in price and *quality*," and he might get satisfaction in part, if not entire. The only drawback to this is that "Fritz" would have to inform "Mr. H." as to the *quality* of his "stock," and if he, "Fritz," should happen to be a little hard up—which might be—he would in all probability lie a little to "Mr. H.," which would interfere with his future happiness. But here it is—I quote *verbatim et literatim*, save names, and that I do the italicising:

OFFICE OF A. M. FRITZ, D. D. S., }
 Surgeon Dentist, Main St., ———, Pa. }

M———:

I have furnished my office with stock and fixtures equal to any office in the *United States*, and at all times keep in stock five hundred set of teeth of all the best makes, thus giving my patrons a *chance to select for themselves*, both in price and quality. My office fixtures are all of the latest improvement, *having purchased one of the S. S. W. Pedal Chairs, at a cost of Two Hundred and Twenty Dollars, for the purpose of administering anesthetics.* All medical men who have examined it claim that it is a very great *assurance of safety to them in administering; and also a two term graduate* (the only one in Fayette county, and the only man in ——— who has attended Dental Lectures) gives me a great advantage. I will extract sixteen teeth in thirty seconds, with less pain than parties have *been in the habit of* experiencing in having one *pulled.* In all cases where the work is not satisfactory [this is H.'s strong hold], the money will be cheerfully refunded. Respectfully yours,

A. M. FRITZ, D. D. S.—which is “Surgeon Dentist.”

Yes, this is the circular sent to the citizens of ——— and vicinity, by a “two term graduate of a Dental College”!!—“How long, O Lord, how long!”—A two term graduate! How good the Lord is to the inhabitants of Fayette county! Only one! Yes, this is a thoroughbred “Fritz,” and he returns his thanks to “Mr. Hypothetical,” and his cousins, and his uncles, and his aunts, etc., etc., for his office is furnished “equal to any in the United States.” M.

Editor of the Ohio State Journal of Dental Science:

DEAR SIR:—In reply to your correspondent signing himself W., on page 362 of your JOURNAL for December I will state that I can show a good record as a first-class dentist, and as a graduate of a first-class Dental College in Philadelphia, and to prevent any confusion with the name of my estimable brother, H. C. Register, M. D., D. D. S., of Philadelphia, I state my residence is Milford, Delaware. From my personal observations of old amalgam fillings, their appearance led me to believe amalgam must necessarily expand to a certain degree; so I accepted it as an accepted theory at the time by many, although such teachings were not taught me by my preceptor (my brother), nor by my Alma Mater; so I naturally based the success of my practice on the theory of the driving of the investment of gutta-percha into the tubuli. It may be, and it may not be, that amalgam expands, but when a thing is a success, that is an established

fact, whatever the theory may be; and if my theory can not be accepted, my practice, in time, must, as I know, from practical experience, that my treatment of cervical walls, preparatory to filling with amalgam, will save teeth better than the placing of metal directly in contact, against the said portions of the teeth. I can see nothing more unprofessional in offering the knowledge of my treatment for sale than that of hundreds of other first-class dentists, who freely advertise their secret preparations for sale. I do not think W.'s personal remarks worthy of notice, and I do not think any dentist who accepts literally "The Golden Rule" will use my "Preparatory Treatment of Cervical Walls," without first paying me for it. Yours Very Truly,

J. E. REGISTER.

REMARKS.—On the principle of fair play, we give the above a place, but we do not wish it to be understood that we recognize the right—otherwise than the legal right—to speculate on small thoughts and suggestions, while drinking in from the fountain of professional knowledge, which flows as freely as the waters of the river of life, in the Revelation. A man in trade is usually expected to appropriate his own thoughts and inventions, on the principle that business is selfish. The professional man, as a general rule, freely receives, and is expected to freely give, accordingly. Still the law—statute law—allows him to be as selfish as the man of business. But when almost an entire profession is struggling to forward the car of professional progress, as is the case in dentistry, it hardly seems generous to block the wheels of advancement by even a gravel stone.

What would be thought of the zealous workers who have grown grey while giving half or two-thirds of their time to the advance of professional knowledge, had they secreted each advance thought, as it formed in their fertile brains? Would their professional reputation be what it is? Would our correspondent estimate them as highly as he does now? Still, we recognize their legal right to be selfish. But in being so, they should act fairly. They ought to confine themselves entirely to the use of their own inventions, while practicing; and we fear they would find this inconvenient. We suggest to each reader to take his pencil and jot down all that he has contributed to the common stock of professional art and science, making an honest invoice, yet giving

himself the benefit of the doubt wherever it exists, and then to think carefully and honestly whether or not he could even approximate the practice of his profession with only such a stock in trade. If we would each try this course, we would possibly feel smaller than we do. It may be, as our correspondent suggests, that "hundreds of other first-class dentists freely advertise their secret preparations for sale;" but if they do, we advise each of them to make an invoice as above suggested.

Editor of the Ohio State Journal of Dental Science.

I find I have been somewhat misinformed in regard to the application of Dr. Gunning's splints, the cuts of which are appearing in your JOURNAL illustrating my article, "Fractures of the Inferior Maxilla."

Splint shown in cut No. 19, is intended to cover the lower teeth only, and secured by ligatures to the teeth.

Fig. 20, shows an outside appliance, in conjunction with which a splint similar to Fig. 18, is to be used in toothless cases.

Fig. 21, is made in several sizes; in the tray portion of this, gutta-percha is placed and manipulated somewhat, as described in the application of Fig. 31. By making this correction you will oblige,

Respectfully,

THOS. L. GILMER.

QUINCY, ILL, January 24, 1882.

Books and Pamphlets.

"Of making many books there is no end."

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY, Seventeenth Annual Session, held at Rock Island, Illinois, May 10th, 1881.

This is a neat volume of 170 pages, printed for the Society by Ransom & Randolph, type and paper same as the JOURNAL. It contains some ten or twelve original papers, beside the regular discussions, minutes, etc. As a whole, it is readable and instructive, and reflects credit on printers, publishers, and all concerned.

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Contributions.

"A word fitly spoken is like apples of gold"—SOLOMON.

SUGGESTIONS RELATIVE TO THE CAUSE OF RAPID DENTAL DECAY.

BY DR. C. W. SPALDING, OF ST. LOUIS.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

During the last year I have given considerable attention to the examination of the mixed fluid of the mouth which is commonly denominated saliva. This examination has been devoted chiefly to the chemical properties of this fluid, with a view of determining how far this property of saliva is responsible for that rapid decay of the teeth which practitioners of dentistry so often encounter.

In common, I believe, with many other practitioners, I have supposed that an acid condition of saliva prevails, or at least may usually be looked for in most cases of rapid decay of the teeth. Under this impression I entered upon a series of chemical tests with a view of endeavoring to discover the cause of this assumed chemical condition of saliva.

My observations have resulted in the formation of an opinion amounting almost to conviction, that the agency heretofore

ascribed to the chemical condition of saliva in promoting decay of the teeth in healthy persons, has been largely over-estimated, if it has not been altogether erroneous.

My first experiments were made upon the saliva of a young girl (aged 12), whose teeth were decaying rapidly, so much so that fillings previously inserted, that is, before the case came into my hands, whether of gold or of other materials, had lasted but a short time, and in whose teeth new cavities were constantly forming, and this at so rapid a rate that cavities of considerable size would form in the space of a few months, notwithstanding pretty thorough cleanliness and good general care. I looked to find an acid reaction of the saliva in this case, and had been reflecting on a course of medical treatment, having in view the correction of this supposed condition of the saliva. What, then, was my surprise, on finding after repeated tests, that the saliva of this young person exhibited in every test either a neutral or a slightly alkaline chemical reaction! In no one of a large number of tests was there any, even the smallest acid reaction shown. I immediately sought other cases where a similar destructive process was going on, but the result in each was precisely the same as in the case just narrated. Indeed, in none was an acid condition present where the subject was in passably good health.

A professional friend also made similar tests in some very marked cases of rapid decay with the same results—no acid condition of saliva revealed.

I do not wish to be misunderstood. I am not combatting the idea that an acid condition of the saliva would promote decay of the teeth. I have no doubt it would do so, but I am endeavoring to show this condition of the saliva is not usual in states of ordinarily good health while the teeth do often rapidly decay, although the general health is not perceptibly, or at least not seriously, disturbed. The view I now present is, if the general health is good or fair, and the saliva normal, or nearly so, any rapid decay of the teeth must be attributed to some other cause than acid saliva. In certain localities favoring the lodgment and retention of food, decomposition of food substances probably takes place accompanied perhaps by the generation of acid. But many of the cavities of the class now under consideration, are located at points very unfavorable to retention, and it would not be fair to assume that decay occurring at these points

was occasioned by products resulting from either the partial digestion, the oxidation, or any other change in food substances.

Are there any other known methods by which acids may be generated, to whose action this rapid decay of the teeth may be fairly attributed? Let the chemists answer. If yes, the methods should be sought out and explained that the chemical theory, as it relates to this class of cases, may be fairly presented. If, however, the chemical theory is found, on thorough investigation, to be inadequate to the production of this class of cavities, or of any cavities under the conditions I have presented, some other cause must be invoked. Are these undetermined causes external or internal to the teeth, or both internal and external? Under the suggestion that internal forces may become important predisposing causes to decay of the teeth, our thoughts turn at once to faulty development, and to the period when calcification of the teeth is going on. The calcification of the deciduous teeth commences about the fourth or fifth month of fetal life, and that of the permanent teeth during the ninth month of fetal life, or the first month after birth. It will therefore be seen that if medicinal treatment is to be attempted, it should be commenced at an early period of fetal growth. The calcific process continues uninterruptedly until the completion of the third molars, which it is probably safe to say does not take place earlier than the fifteenth year. Yet I think we may with fairness conclude that if the deciduous teeth are perfectly developed, no medication will be required to insure a similar condition of the permanent set.

If defective development is to be regarded as a primary predisposing cause of the early and speedy decay of the teeth, our attention should, first of all, be directed to the most effective means of correcting this evil. Evidently there is but one mode by which preventive or corrective methods can be made effectual previous to birth. It is only through the blood of the mother that ante-natal treatment can be successfully applied. But whether defective development is due to a scanty supply of nutrient material, or to a lack of assimilative or developmental force in the individual, is first to be considered, that treatment may conform to diagnosis. If to insufficient supply, would not the defect be manifest in the general osseous system? The amount of mineral salts requisite for the calcification of the teeth,—or I might limit the comparison to the enamel of the

teeth,—is small, compared with that which is necessary to construct the entire skeleton. I may here notice the fact that bone and dentine are but imperfectly calcified at birth, and that deposition of lime salts goes on at a rather rapid rate for a considerable time after birth; and it should also be noted that the post-partum deposition of lime salts is probably slower and more difficult in enamel than it is in either bone or dentine. This latter implies the greater need for ante-natal methods of insuring the perfect formation of enamel. But to return. The relatively small amount of lime salts composing the hard elements of an entire denture would scarcely be missed if the deficiency was equally distributed over the whole osseous system. If defective enamel is owing to an insufficiency of supply, would not the defect be general and show itself elsewhere as well as in the enamel of the teeth? I am aware that the tardy closure of the fontanelles, and the late hardening of the bones of the infant, are indications of a lack of ossific material; but these cases are exceptional, and include but a small proportion of those in which rapid decay of the teeth is a marked and prominent symptom. If this condition does not proceed from a deficiency of nutritive material, it must necessarily arise from a want of assimilative force. I am inclined to accept the latter hypothesis, and to attribute the faulty formation to what I may call defective lime function, rather than to a lack of the substance itself. If this view is correct, we are at once brought into the field of preventive medicine, a field that has been but imperfectly tilled, especially that branch which relates to medical treatment of the unborn child.

Probably Jenner was the first to bring into notice a useful example of preventive medicine when he announced the discovery that cow-pox inoculation was a preventive of small-pox. This was also one of the first revelations of the prophylactic utility of the law of similars. Grawvogel has more recently applied this law to the correction of hereditary ante-natal deformities, by the use of prophylactics administered to the mother. He reports a case of what may be called hereditary *hydrocephalus acutus*, although neither of the parents exhibited any tendency towards this disease. Two children had been born in this family and both had been attacked in early life, both cases terminating fatally. The parents are described as being healthy, both having

blonde hair, thin skin and blue eyes, one being spare and the other of full habit. The disease began to be developed in both children coincidently with the eruption of the lower incisor teeth.

Osseous nutrition is always deficient in *hydrocephalus*, resulting probably from defective assimilation. This imperfection would probably manifest itself in the formation of the teeth as well as in the cranial bones, and, if so, the cause must have been in operation previous to their eruption. This latter event is usually accompanied by considerable disturbance of the nutritive processes, and this disturbance may well be supposed to occasion manifestation of any predisposing causes of disease that had heretofore lain dormant. Hence, the concurrence of *hydrocephalus* and dentition.

In the treatment of the above named case sulphur and cal-carea phos. were given, one dose of either on alternate days to the mother, commencing at the beginning of gestation and continuing to the birth of the child. Two additional children have been born of the same parents, both under this treatment of the mother, and both now respectively five and three years of age, are reported as being fine, healthy children, entirely free from any hydrocephalic symptoms. This case was not reported for the reason that it was either a solitary or an unusual one, but for the purpose of illustration only. Similar treatment has been pursued in other families where there had previously been a hydrocephalic child, and the same good results have uniformly followed. Hydrocephalic children have also been successfully treated by similar means, with the difference that sulphur was not indicated after the disease had made its appearance, and was, therefore, omitted.

Another interesting case of preventive medicine has been recently reported by J. C. Burnett, M. D., of London, England. In 1874, Dr. B. was consulted by a gentleman about his children, the youngest of whom had double hare-lip. The one next older had a defect in the upper lip, amounting almost to hare-lip, while the third or oldest child had no similar defect. The first born being perfect, the second having an insufficiency of the upper lip, and the third having double hare-lip, it was thought, taking all the circumstances into consideration, that the fourth child would be likely to have double hare-lip and possibly cleft-palate. It was determined to endeavor to prevent so unfortunate an occur-

rence, and an attempt at ante-natal treatment was made with that view. Calcareo sulph. was chosen in this case in preference to calcarea phos. by reason of the psoric diathesis of the mother. At full term the mother gave birth to a perfect child, and subsequently the same treatment was followed through a second pregnancy with a like result.

The *Practitioner* for December, 1878, contains a paper "On the Preventive Treatment of Cleft-palate, Hare-lip, etc.," by Thomas P. Tuckey, M. D., of County Cork, Ireland. He reports the following case:

Mrs. H., aged thirty-five, mother of six children. Every one of the children has had hare-lip, two having also had cleft-palate. The mother could not call to mind any case of hare-lip in her own or husband's family. Both parents were strong, healthy persons, neither having ever been seriously ill. Dr. Tuckey proposed ante-natal treatment.

A pregnancy occurred when the doctor prescribed the following mixture:

R.	Calcis. phos.	-	-	-	-	-	5 j.	grs. 20.
	Calcis Carb.	-	-	-	-	-	5 j.	
	Bicarb. magnes.					•		
	Chlorid sodii.							
	Sodæ Phosph.	aa	-	-	ss.	M.		

The above to be added to an 8 oz. mixture composed of gelatine, gum arabic, syrup of ginger and cinnamon water; 1 dram, three times daily.

As clefts in the palate and lip are said to be due to arrest of development prior to the end of the third month, Mrs. H. was put upon this mixture at once. It was no doubt intended to represent the constituents of bone. The essential parts are the lime, magnesia and phosphorus.

"The woman took her medicine regularly until the fourth month; at her full time she was delivered of a girl without a trace of deformity about her lips or palate."

Dr. T. reports another case, Mrs. L., "mother of eight children, most of whom had cleft-palate and hare-lip; in four of them the hare-lip was double, and more shocking objects of deformity he had never seen. One boy was perfectly repulsive. The woman believed herself pregnant, and was at once put on the medicine. She went her full time, bore a girl without hare-

lip, indeed, but who evidently had had one in utero: for the lip, though united, was united crookedly, and one side was puckered up, as if by a slight and narrow burn."

It may be objected that these cases prove nothing; that there is no positive evidence that the same children would not have been born without deformity if no medicine had been given. To this I answer, I am only citing history, leaving every one free to draw his own inferences. Besides, I am only making suggestions for the purpose of drawing attention to the subject with a view to further investigation, in which I trust the members of this Society will join.

Embryology teaches us that the face is formed of a central portion produced from the frontal process, and of right and left lateral parts derived from the extremity of the first visceral arch. From this arch proceed the parts from which the superior and inferior maxillaries are subsequently developed. At the period in developmental growth when the superior maxillary unites with the frontal process, a cavity remains which constitutes the nasal cavity. The palate and intermaxillary bones bridge this space, and thus the nose is separated from the mouth. There are many varieties of congenital cleft of the palate, differing, however, only in degree, while all of them may be said to result from arrested development. Whenever the inter-maxillary fails to unite with the maxillary bone, a cleft is the result. The same causes which produce the cleft, produce the corresponding hiatus in the soft palate or lip.

In conclusion I wish to say that it does not appear to me to be a legitimate inference that this arrest of development is due to a lack of nutritive material. The maxillaries and all other parts of the osseous structure complete themselves in the usual way. The arrest of development is limited to a specific and comparatively insignificant anatomical part. If the arrest was due to a lack of material, would it not be likely to include a larger area, and at least affect other parts that calcify coincidently with those now under consideration?

I feel, Mr. President, that an apology is due for the hasty and imperfect manner in which these notes have been prepared. My excuse is that the paper is not intended as a treatise, not even as an essay, but only as a brief presentation of some of my thoughts relative to this obscure, yet very important, subject.

[Continued from February Number.]

FRACTURES OF THE INFERIOR MAXILLA.

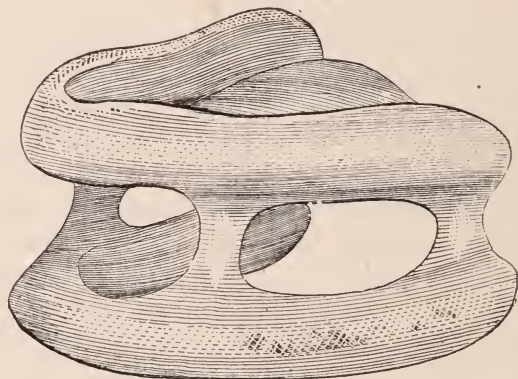
BY THOS. L. GILMER, QUINCY, ILL.

Illustrated by Dr. G. V. Black, Jacksonville, Ill.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

GRISWOLD SPLINT.

In the Missouri Dental Journal, for July, 1872, Dr. Griswold, of Leavenworth, Kansas, reported the treatment of a case in
FIG. 35.



A support for toothless jaws. A set of teeth that have been worn may be wired together and used for this purpose.

which he used a splint very similar to this. The splint was made of vulcanite, capping the lower teeth. An impression of the face under the chin was secured, from which a gutta-percha splint was formed, having two projections, one at each side; through these, holes were drilled sufficiently large to admit the passage of No. 13 wire; threads were cut on one end of these wires for thumb-screws, while the other end was bent to fit into holes drilled into the splint for their reception. The inner and outer splints were put in position, and there secured by the wires and screws. He also fastened to the outer splint two cloth or leathern bands, extending from each side of the mouth to the occiput, and there fastened to each other by a buckle. I have never used this form of splint, but if properly made, it will doubtless be useful in many cases.

INTERDENTAL SPLINT WIRED AROUND THE BONE.

In compound fractures, when the external wounds are serious,

and free drainage essential, a splint, independent of outside adjuncts, is very desirable. Such a splint may be formed of gutta percha or vulcanite, and secured by wiring around the bone. (Figs. 28, 29, 30.) The splint is made by capping the lower teeth,

FIG. 36.



Illustrates a plan of wiring a fracture by passing a wire through holes drilled through the ends of the bone and securing it by beads and lead. This can only be used in positions in which a drill can be passed directly across the line of fracture and brought to the surface, as in the curve of the bone about the chin.

and is adjusted to the upper on its superior surface. A threaded needle, with the eye in the point, adapted to the work, is started in close to the fracture on the lingual side of the jaw, near the duplicature of the mucous membrane, carried down as closely as possible to the bone, and curving under it, is brought out on the face below. A loop of its thread is secured, opened sufficiently,

pilot thread, the free ends of the ligature are drawn through needle hole No. 2, and around the bone. Now we have two double threads around the bone. The loop of one of these is used to draw in a stout silver or platinum wire. This process is repeated until we have two wires, and with them, ligatures around each fragment. The splint is applied to

FIG. 38.



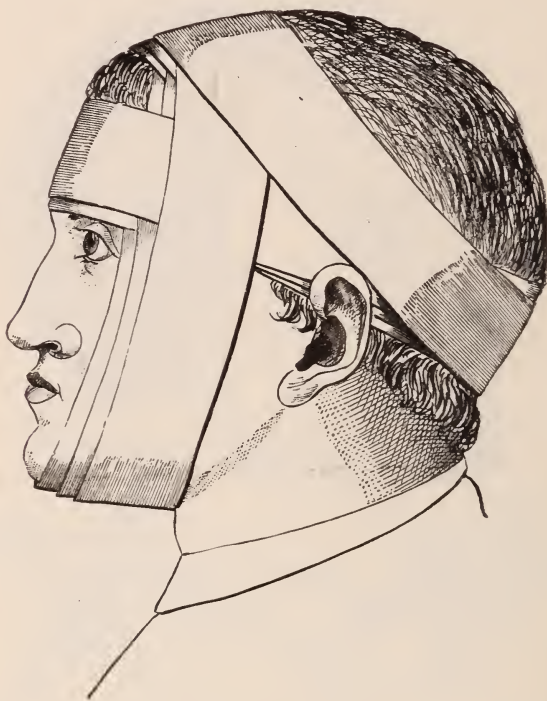
Illustration of a method of forming a stitch by drilling holes near the fracture in each fragment and passing stiff wires of suitable length through. These are held together by wrapping wire or thread from one to the other. The outer ends may extend out through the tissues upon the face.

the teeth, which are firmly drawn up into their places by the threads being brought together over the top of the splint and tied so that they will receive a lever by which they may be twisted, thereby forcing the teeth firmly and securely into their places. This being done, the wires are brought together over the top of the splint and fastened, when the threads having served their

purpose, are removed. The upper surface is adjusted to the superior teeth. The patient will masticate very well on such a splint. In the application of the ligatures, care must be taken to avoid the facial artery.

This splint, although requiring a little more knowledge of surgery for its application, is not so difficult to adjust as it might

FIG. 39.



Bandage above described.

seem. In those cases to which it is adapted, I consider this method of treatment superior to all others.

The method of wiring around the bone was first suggested and successfully used by Dr. G. V. Black, Jacksonville, Illinois.

BLACK'S SPLINT.

Dr. Black has suggested to me the following mode of treatment in single fractures, where displacement is present only to a slight extent, and the fragments not so rigidly held out of place

as to prevent the easy adjustment of the parts. He does not expect this treatment to take the place of that class of splints in use which can be made more delicate, and which from this fact are more cleanly, therefore preferable; but it is applicable to that class of patients who cannot appreciate, or are unable to pay for an appliance requiring a skillful operator to make and adjust

FIG. 40.



Bandage.

it. Such an appliance approaches more nearly to a universal splint than any other with which I am acquainted. He suggests that an instrument similar to the tongue holder used while operating upon the teeth in filling, be made in about three sizes, to accommodate the differently shaped jaws of different patients. (Fig. 31.) That portion of it inside the mouth should have the form of a lower impression cup, and be made of some suitable metal which can be changed in shape so that it may be easily adapted to the lower arch of teeth. That part under the chin

should be larger than the corresponding portion in the tongue holder, and more nearly the form of the chin. To secure greater stiffness the appliance may have two arms instead of one; (Fig. 33) in either case, they are fastened in the tubes or tube of the lower half by a ratchet or screw. The upper surface of the cup, which is used as a tray in taking the impression, should be flat, and the greater part of it cut away to permit the gutta-percha, which is used in conjunction with the splint, to flow through, so that it may be adjusted to the upper teeth. It is applied as follows: (Fig. 32.) The part resembling the impression cup is filled with warm gutta-percha, the fragments are firmly held in place, and an impression of the teeth is made; after which the lower part is covered with plaster or soft gutta-percha and applied to the chin; at the same time the arm of the upper part of the appliance is placed in the tube of the lower, and the chin piece pressed up until a perfect impression of the chin is secured. When the material is hard the appliance is removed and the redundant gutta-percha trimmed away; it is then placed in the mouth and the upper part of the splint secured to the lower by the ratchet or screw.

A skillful physician, remote from a competent dentist, might apply such a splint, and by its use obtain better results than are sometimes obtained by other methods. Great care must be exercised in its application when the impressions are being taken, as a poor adjustment of the fragments may cause direful results.

Dr. Black thinks it would be safer to take the impression of the teeth part from a plaster model of the jaw; but this would render its use impossible in the hands of the less skillful, as the taking of the impression and the construction of the cast requires more acquaintance with this kind of work than is usually possessed by the physician. I think it may be successfully used in cases where displacement is present, by taking the impression of the mouth part from a reconstructed cast, then adjusting it to the teeth and proceeding as before with the remainder of the operation.

TOOTHLESS CASES.

In the treatment of fractures of the lower jaw by splinting, when the mouth is toothless, (Fig. 34) I must confess I am not equal to the occasion, unless the patient have artificial teeth. If

the unfortunate has none, there is nothing to guide as to the articulation. In case there are artificial teeth, the upper and lower plates may be articulated and casts secured from them, upon which an *inter-maxillary* splint (Fig. 35) may be formed, similar to the Gunning splint, with that part of the appliance occupied by the teeth cut away, leaving connecting pieces on each side, both front and rear. By cutting this away there will be less material in the mouth, and the inner parts can be kept cleaner. The splint is held in place in the mouth by the skull cap, and by the band under the chin, the latter supporting a gutta-percha boot fitted to the chin. The skull cap and band are fastened, as before described in the Gunning splint, to the wings which are attached to the splint.

If the ridge on the lower jaw be sufficiently high, this method of treatment may work reasonably well; but if it be flat, as is usually the case with aged persons, it is hardly probable that a perfect adaptation of fragments will be had, and it is quite doubtful if anything in the nature of a splint will be of any use whatever. If there are no artificial teeth, or if the lower ridge is not sufficiently prominent, thus rendering any form of splint impracticable, the treatment in which the fragments are wired together, as before described, will be almost the only plan of holding the parts together.

Before applying any form of splint, the mouth should be thoroughly examined, and if loose teeth, roots or pieces of bone be present, which may hinder union, or endanger the life of the bone by their presence, they should be removed.

Inter-dental splints should have holes drilled in them in suitable places, that the teeth may be frequently cleansed with an antiseptic wash by the aid of a small syringe. Cleanliness is of imperative importance in all kinds of appliances.

In regard to the advantages of splints, we will quote from Prof. Kingsley's "Oral Deformities." He says, "Its advantages lie entirely in the skill with which the plaster jaw is reconstructed, and the accuracy with which the splint is made; for if either of these qualities be wanting, a splint of this form (meaning his splint, but the statement is applicable to all splints in which the cast is reconstructed) is of no more value than gutta-percha or a more imperfect method, and may even do positive harm. I fancy that it is because inter-dental splints have been so bunglingly

made and applied, that they have met with no more favor with certain eminent surgeons who have tried them."

There is very much more which might be added to this paper that would increase its value, but to do justice to the subject would render it necessary to give it more time than I can afford. It would also make the essay too long to be read before a society.

DISCUSSION.

DR. BLACK: I wish to call attention still more strongly to cases of compound fractures, especially those in which we find the lower jaw broken into three or four pieces, and the soft parts badly bruised, cut or lacerated. Here we have a serious task before us; yet these cases can be treated successfully, the contour of the face, and the antagonization of the teeth, restored. But they are the most difficult of fractures to reduce, and retain in position.

The reconstruction of the model, as described in the paper, should be well understood by us all, for any one of us may be called upon to do it.

Take this case: The lower jaw broken in three places—four pieces—away in the country where we cannot run back to our own, nor reach the office of a brother dentist; patient very fleshy, badly cut and bruised; parts very much swollen, so that the application of anything like a boot to the chin is out of the question. Here we have an ugly thing. We have had to treat just this case. Knowing nothing more than that there was a fracture of the lower jaw, we packed such things as we thought we might need into our satchel, and upon arrival found all the ugliness above described. After consultation with surgeons in attendance, a course was determined upon.

An impression of the lower jaw was obtained, and the cast reconstructed as described in the paper, except that all but one of the upper teeth were knocked out by the accident, complicating the reconstruction of the model. Measurements and the eye had, therefore, to take the place of the worn surfaces of the upper teeth as a means to determine the position of the fragments. An impression of the fragments, or rather of the teeth in the fragments, was obtained, a cast made, and cut apart at the points of fracture. Then the best possible approximation to the proper

width of the posterior jaw was arrived at by measurements, and the pieces of the cast formed into a symmetrical whole, waxed together, and secured by the addition of more plaster. A heavy iron wire was found about the house, and bent in such form that it would lie upon the grinding and cutting surfaces of the teeth, and cut to the proper length. Hot water having been prepared, a sheet of ordinary gutta-percha (for trial plates) was moulded to the cast, as perfectly as possible with the fingers. The wire was now warmed, and laid upon this, and another softened piece of gutta-percha quickly moulded over it, and firmly welded to the first. The whole was removed from the cast and trimmed, and my splint was formed.

The next step was the introduction of the threads and wires around the fragments of the jaw, as described in the paper by Dr. Gilmer, with the needles shown. Two of these were placed around each fragment, leaving the ends long, and so secured as to be as much out of the way of further operations as possible, and to prevent entanglements. Now the adjustment of the splint, and with it the reduction of the fracture, was begun. First, the teeth of one of the posterior fragments were forced into their places in the splint, and held by tying the *threads* over it. When thus secured, a second piece was pushed into its place, and in like manner secured with the threads. The reduction was thus continued until all the fragments were in place, and secured by the threads, examined, and found to be about the right thing. Then the threads were drawn very tight, by wrapping them around a small instrument, the end of which rested upon the splint; and while so held the *wires* were drawn tight, and secured by twisting one after another, until these, also, were all secured.

Now the threads, having served their purpose, were removed, and the operation upon the fractures was complete. The wounds of the soft parts then received proper attention, and such bandage as was practicable in the case applied, giving some little support to the parts.

The result was perfect union of the fragments, and the only deformity noticeable after recovery was the scars from the lacerations of the face.

This plan of treatment is not at all necessary for ordinary fractures, but for these extreme cases I unhesitatingly recommend it. The only point of danger is in wounding the facial artery

with the needle. The needle may be passed between the artery and the bone, or it may be so passed as to include the artery between the thread and the bone.

DR. MORRISON: Have you ever seen any necrosis at the points where the wire sutures impinge upon the bone?

DR. BLACK: I have not. I agree with Dr. Gilmer as to the value of the posterior band splint. I have made them of rubber, celluloid, and metal, and they have never failed to accomplish good results. I also think very favorably of the universal splint shown. In using it, the gutta-percha impression taken in the mouth part should be removed and examined (after it has remained long enough to be thoroughly hardened.) If this is right, it only needs to be reapplied. If it is not right, if the parts have not been held in position, a model must be made and reconstructed as in other cases, and a new impression secured in the splint from this, thus perfecting the splint. I have an impression of my own lower teeth in this splint [placing it in position, and speaking with it in his mouth.] You will find that when the teeth are forced into a gutta-percha impression they are held very firmly. Now we fill the chin piece either with softened gutta-percha or with plaster paris, and, passing its cylinder over the stem of the mouth part, press it up on the chin. If the posterior fragments are long enough to keep it from tipping down in front, it will hold the fractured parts perfectly.

If not, it will need the aid of a bandage, or some other form of splint should be used. This splint may be used in all single fractures in the body of the bone, except wounds of the soft parts prevent the application of the chin piece. The greatest objection to it is that it is necessarily bulky; but you will see, from the way I speak with it applied, that this is no great objection.

DR. BROPHY: I once had some experience with a non-uniting fracture of the under jaw. The broken surfaces were exposed and scraped, after which it progressed favorably.

Food may sometimes be passed by means of a bent tube, around behind the last teeth, and so the teeth of the two jaws be held firmly in a close articulation, which affords greater certainty of entire accuracy in the adjustment of the broken pieces of the jaw.

MY STRUGGLE WITH CHLOROFORM: WAS SHE DEAD?

BY DR. J. H. SIDDALL, CANTON, OHIO.

ON the morning of the 22d of December, 1881, a young lady, a teacher in the east division of our Union Schools, presented herself in company with her physician, for the purpose of having twelve upper teeth extracted while under the influence of chloroform. The lady was delicate, but full of ambition, and of a very nervous temperament, and about one hundred pounds in weight. The doctor drew from his pocket a single ounce of ether. I remarked to him that as she had so many teeth to extract, and with his way of using anæsthesia (on a napkin in a cone made from a newspaper), that an ounce would be entirely insufficient; and he went for more, as I supposed, *ether*. Returning, I placed the patient reclining, and taking my place by her side, held her pulse while he proceeded with the ounce of ether. Nothing unusual followed, except the uneven progress to sleep, which always follows the uneven administration of any anæsthetic. This often results from removing the napkin and dashing on it more chloroform, or from disturbing otherwise what should be a quiet sleep, in which this patient had been instructed to try and participate. But *here, right here*, the powerless form that had confided in, and paid for, the skill of an expert, is strangled for want of uniformity of administration, and is poisoned with the reinhalations from the lungs. More than once in the past twenty years have I taken from the unskilled hand of my *superior* the messenger of death, and with *ether* and *pure air*, won an untold victory. But pardon my digression. To my story: The ounce of ether having been consumed, the other bottle (chloroform) was applied, and about one-fourth of an ounce being given on the same napkin, I noticed her condition, and it looked favorable for the operation, and I began with a curved-handled bicuspid forcep. I removed all the upper teeth with great rapidity, without a break or wavering. As I laid hold of the last one, a molar, I saw her turn up her eyes, and go down; and heard her physician say, "She is gone!" "*No; she's not!*" I cried, and quickly grasping her, placed her on her back, flat on the floor, directing the doctor, with all speed, to get me some ammonia. I began to *pump* both arms, moving them up, and down, and out, and to her

sides, thus producing artificial respiration, at the same time directing a lady present to drop cold water gently upon her face, and with the addition of the grateful ammonia, in one nostril at a time, and the occasional lifting up and dropping of the head quickly, to keep up the motion of the blood, after a long twenty minutes, of the most faithful work and the greatest anxiety I ever experienced, I saw a slight coloring of blood appear in her cheek, and again a motion of the eye when the water fell, and the *victory was mine!* During these awful twenty minutes no sign of life was perceptible; and to those who were present and aided me in my fight, she was dead. A little brandy, and an occasional smell at the ammonia followed; and in two hours she walked home.

TUMORS OF THE MOUTH.

BY DR. M. B. LOWRY.

(Read before the Odontological Society of Western Pennsylvania.)

TUMORS of the mouth are of several kinds, simple hypertrophy of the gums, polypus, epulis, and vascular tumors, constitute the principal varieties.

HYPERTROPHY, OR MORBID GROWTH OF THE GUM.

The structural changes which take place in the gums, as a consequence of increased vascular action, are almost as various as are the constitutional tendencies of different individuals. Those characterizing this affection will be noticed growing up from about the teeth until they cover their crowns to a considerable extent. When thus affected, the gums have a dark purple color, with thick, smooth and rounded margins, and discharge almost constantly a thin purulent matter, which has a very offensive odor. They bleed profusely from the slightest injury, and are also very sore. The lip pressing against them causes considerable annoyance and pain. They have also a peculiar itching sensation which is extremely annoying. Among the local and constitutional effects arising from this disease are offensive breath and vitiated saliva. The disease will also go so far as to destroy the alveoli, with loosening and ultimate loss of the teeth, enlargement of the tonsils and impairment of digestion, with all its disagreeable consequences and train of other phenomena.

CAUSES. —The exciting causes of this affection are local irritation, produced by tartar, necrosed alveoli, dead or diseased teeth, and sometimes a crowded condition of the teeth. Some constitutions are peculiarly susceptible of this affection, and will have it in its most aggravated form. I have never seen or read of a case where salivary calculus was not present acting as an irritant.

TREATMENT. —The first thing to be attended to is the removal of all foreign matter that does, or will in any way, act as an irritant. All morbid growths should be removed, and incisions should be made so as to completely discharge the surplus blood. All foreign matter must be kept away, and the parts must be kept perfectly clean, and frequently lanced to discharge the morbid blood that may accumulate from time to time. In this way the progress of the disease may be arrested; but we must not expect a cure from local treatment alone. Particular attention must be paid to the regimen of the patient, as the peculiar nature of the case may indicate. During constitutional treatment, local measures must be continued, such as scarifying the gums, using mouth washes of astringent solutions, keeping the mouth perfectly clean, etc., and you may expect a cure.

POLYPUS.

This is a morbid excrescence developed from mucous membrane, and it is not uncommon to find these tumors growing up from the mucous membrane of the mouth. *Polypi* are similar in appearance to the surrounding gum, but they differ widely in their texture, and in the nature of their attachments. They vary much in size, mode of adhesion and intimate nature. Some are of a soft, fleshy, or gelatinous nature, springing from a narrow pedicle, widening out into somewhat of a pear or egg-shaped bulb. Some are wide at the base, extending between and around the teeth. Some are soft, fleshy, gelatinous, and others soft and fibrous. They are not generally vascular; but some will bleed freely on the slightest injury. They have received various appellations; as, *mucous, soft, vascular*. The gelatinous and fibrous are not vascular, while others will bleed freely. There is seldom any pain attending this diseased tissue unless it receives some injury and ulcerates. It then may become very painful, and there will also be a discharge of thin, purulent matter which is very offensive. Under these circumstances, the

patient may be unable to distinguish the pain from ordinary toothache; or from inflammation of a dental pulp. If allowed to take its own course, it will grow to a considerable size, encroaching on the tongue, and interfering with deglutition and respiration.

CAUSES.—The exciting causes of this affection are teeth that are decayed to or below the edge of the gum, with ragged sharp edges, a root, and necrosed or loose bone. We, at times, find it necessary to cut a V, or wedge shape between the teeth; and if proper care is not taken, there may arise a polypus between the teeth, the result of leaving a ragged edge, or sharp point, and perhaps crowding a small portion of the filling material along the side of the tooth, which may act as an irritant. In other words, *Polypus is produced by local irritation.*

TREATMENT.—The treatment consists in the early removal of the causes. This is done in various ways, according to the situation and nature of the tumor. If from a tooth decayed down to or below the gum, affording a receptacle for polypus, they are usually too deeply involved in disease to admit of successful treatment. Teeth and roots should be extracted and the tumor carefully cut away. All necrosed or loose bone must be removed and even a part of the healthy alveolus or gum. If from a defective operation, the operator must see to it that nothing about the tooth is left to act as an irritant. Cut the tumor from between the teeth. In my own practice I have used cotton saturated with sandarac varnish, dressing from time to time, and letting remain until all disposition of the tumor to return has been overcome. At times I use sulphate of copper in a powdered form, for the cicatrization of the tumor.

EPULIS.

This is a morbid growth, sometimes ending in cancer, *Odontia excrescence, Sarcoma epulis*. Tumors springing up from the margin of the gums, whatever may be their structural character, are in my opinion, Epulis. Both jaws are subject to this disease. The difference in structure depends somewhat upon the tissue in which they originate, as the gum, the membranes of the teeth, the periosteum of the alveoli, or the membranes lining the cavity. All the surfaces of the bone or lining of their cavities are subject to Epulis, they becoming the seat of tumors of every size and consistency, benign and malignant. We also find the tongue and lips involved in this disease.

In many cases it may be extremely difficult, if not impossible, to find any satisfactory cause for the occurrence of epulis; but in others, an examination of the tumor reveals a source of the disease, or rather irritation to which the presence of the disease may be assigned. The disease, at its outset, is usually confined to the edge of the gum, and, as a general thing, that portion which lies between the teeth. The attachments are at first limited to the interdental gum. The attachments may be by a small and flattened pedicle, or by a broad base. The tumor is generally of slow growth. It may grow till it covers the whole of the alveolar ridge, forcing the teeth from their sockets, encroaching on both hard and soft palate, interfering with mastication and deglutition. The tumors springing from the fibrous tissue are very generally themselves fibrous in character. In respect to vascularity they generally correspond with the adjacent gum, and the density of the tumor.

When the tumors have attained considerable size, they become malignant, which very much alters, the character of the disease. When the surface is injured, the injured part becomes the seat of ulcers, which emit a copious and fetid discharge; and the patient has acute suffering and great annoyance; when malignant they are vascular, and hemorrhages are liable to occur. Epulis will show hues varying in color from a deep red to a buff, and a peculiar light greenish tint of yellow.

Epulis when benign is generally of a red color, and a soft and spongy consistence. It is a smooth, shining tumor, elastic, compressible, but little sensitive, and will bleed freely when cut. The disease may originate in the sockets of teeth that appear perfectly sound, and may be accompanied with swelling and a discharge of pus. We have another form which is extremely sensitive accompanied with acute lancinating pain. We also have the cancerous, or malignant tumor.

TREATMENT.—The treatment of Epulis will depend upon circumstances. If the tumor is benign, depending on irritation alone, caused by decayed teeth, roots, etc., it is only necessary to remove the cause of the trouble, and then cut away the tumor, and destroy what may remain of it by caustic or by compression. If the tumor be of the elastic kind, it will require a thorough removal. If attached by a narrow neck, it can be removed by a ligature or the knife. If the latter is used, profuse bleeding may

follow, requiring the use of persulphate of iron or the actual cautery. If the tumor is of scirrhus or malignant form, a very thorough excision will be required. All bony structures in any way connected with it, must be boldly cut away, and such other treatment adopted as the circumstances may demand. Whatever the nature of these tumors, they should be carefully watched, and on the slightest indication of a return of the disease, prompt treatment must be adopted, with the knife, caustic, or actual cautery, as the nature of the case may require.

FISTULOUS TUMORS.

I will here mention a case of a fistulous tumor. A lady came to me last June for treatment. She had a tumor on the left side of the inferior maxilla, extending from the second bicuspid as far back as the wisdom tooth. It was in shape something like a cauliflower, and, of a rather light pinkish red color. Its texture was of a rather solid, fleshy consistence with a slight discharge of pus. The tumor had grown up to interfere with mastication, but was not painful.

CAUSES.—The tumor originated from a blow received on the side of the jaw, breaking a small portion of the alveolus.

TREATMENT.—I cut away the tumor, removed all the broken alveolus, syringed the parts clean with a solution of one part carbolic acid to nine of water. The gums healed almost by first intention. After the removal of the tumor I cut it open, found a sack containing thick pus, the tumor also contained a small portion of loose alveolus.

OSSEOUS TUMOR.

I will also speak of a lady who came to me a few years ago for treatment of exostoses of both superior and inferior maxillaries. The growth covered the whole of the alveolar ridge of both jaws, causing the lips to protrude to a considerable extent. There was no pain attending the disease. The growth was near one-half inch in thickness, with the gum grown tight over the tumor.

CAUSE.—I could never find any cause other than tartar, of a very dark and hard consistency, attached firmly to the necks of the teeth.

TREATMENT.—After extracting all of the teeth, I dissected the gum below the osseous growth, and, with excising forceps, chisel and file, cut the whole of the growth away, trimmed the gum to

make a complete union, and the parts healed nicely. I never saw any disposition of the disease to return, while watching it for three years. At the expiration of one year, I inserted a full set of teeth, which proved very satisfactory.

Editor's Specials.

"Write the Vision and make it plain."

SIXTEENTH ANNUAL MEETING OF THE OHIO STATE DENTAL SOCIETY.

SYNOPSIS OF DISCUSSIONS — REPORTED BY THE EDITOR.

THE Society met in the Board of Trade Rooms, Columbus, and was promptly called to order by C. H. Harroun, D. D. S., President, and was opened with prayer by Rev. J. W. Bailey, D. D., pastor of the First Presbyterian Church, of Columbus.

The morning session of the first day was taken up with routine and miscellaneous business.

A letter from Dr. G. A. Perine, of New York, in reference to securing the appointment of dentists in the army and navy, was received and referred to a special committee. Also, letters from Drs. A. T. Metcalf, G. L. Field, and G. A. Thomas, of the Michigan State Dental Society, were read by the Secretary, and contained special invitations to meet with their Society, to celebrate its quarter-centennial next March.

FIRST DAY—AFTERNOON SESSION.

After the transaction of some miscellaneous and unfinished business, the first subject for discussion was taken up, which is as follows:

PREPARATION OF CAVITIES FOR GOLD FILLINGS.

The discussion was opened by Dr. G. W. Keely reading a paper by Dr. E. S. Talbot, of Chicago, on the "Treatment and Filling Approximal Cavities." We are not prepared to give a synopsis of the paper, and hence must refer to the Transactions; and we may possibly find room in the JOURNAL for the article some time.

The President announced that remarks on the paper were in order.

DR. WATT said he was unavoidably out of the room when the reading of the paper began, but he thought he heard the suggestion that we find the best teeth in the lower grades of civilization. He did not believe the Indians here when the Pilgrims arrived had as good teeth as the present New Englanders; and the worst teeth he had ever seen were with the Digger Indians. He was never satisfied to hear a suggestion that we would better go back toward paganism. The English speaking people live ten or twelve years longer than when he came into the profession. The conditions that lengthen life are those that promote physical development—eyes, ears, teeth, etc. Even the popular notion that the Germans have better teeth than Americans is a mistake, as it is also, that they are stronger. The statistics of our late war show them to be the feeblest race in the United States, unless the Indians. The Insurance Year Book for 1874 calls attention to this fact. But if the sworn testimony of officials is not sufficient, take the testimony of any epidemic. Furnishing a minority of the population in Cincinnati, the German element furnished a decided majority of the deaths during the cholera visitations of 1849 and 1866. For a few years he had a rather heavy German practice, and he thought, on an average, their teeth were not equal to those of the Anglo-Saxons.

DR. H. A. SMITH makes the cavity as simple as possible, square at the cervical border. If rounded, as the paper suggests, he thought it too complex. Gold makes a filling with the best edge strength; but the cavity must be accessible, that the gold may be thoroughly welded. He objected most seriously to the form of cavity suggested in the paper; also to the complexity in working, as first, cohesive gold, then soft, then cohesive again. In ordinary cavity he would use the one kind or the other throughout. If the cavity were as large as the end of your thumb, this complex use of gold might answer; but it was quite too complex, at least for ordinary, shallow cavities. He alluded to Dr. Corydon Palmer, who uses cohesive gold exclusively. He was not a stickler for soft gold, but often preferred it, as he could do the work quicker. As to the relative qualities of the teeth of different races, he thought the Germans in America had teeth of

a better texture than those of the natives, but the American teeth last longer, because better cared for.

DR. G. W. KEELY lays particular stress on separating the teeth, polishing the borders of cavities, and thinks we all do. The paper is right as to polishing for superficial decay. Such cases are sometimes very sensitive; but nitrate of silver, applied to the dentine, will stop its sensitiveness.

DR. HERRIOTT thought the theory of making the teeth self-cleansing was a most damnable doctrine. Instead, the patient must be taught to care more for them, using brush, toothpick, floss silk, etc. Only this course will preserve them after operations.

On motion of Dr. J. Taft, Dr. J. A. Robinson, of Jackson, Michigan, was accorded the privileges of the floor, and invited to give his views of the matter under discussion.

DR. ROBINSON thanked the meeting, and illustrated the difficulty he experienced by stating that he had inquired of a lady of fifty how her eyes held out, and she replied they were as strong as ever, but, unfortunately, the eyes of needles were now made so much smaller than years ago, that she was annoyed in threading them. So, his hearing was good, but the paper was read in a tone so low that he did not get it all. But he would simply state that in filling approximal cavities he used soft gold at the cervical margin and built on with cohesive gold.

DR. R. G. WARNER regarded the paper as a good one, but he objected to postponing the use of the rubber dam till after the cavity is prepared. Putting it on at the start greatly aids in preparing the cavity.

DR. D. R. JENNINGS said that one dentist can not prepare a cavity to suit another. He wanted the cervical wall square, or even beveled out. He uses a matrix for approximal cavities, and has the gold so flush that no tubuli can project beyond it. He would shape the cavity so that the instrument could readily reach any point within it. In cutting down and dressing margins and walls with the bur, the nature of the instrument ought to be well understood. A bur is simply a round file which cuts by rotating. If slowly rotated, it cuts definitely, and with but little pain. When rotating rapidly, but few of its teeth cut. He would make the border of the cavity strong, as if to build a house on. He didn't see how we could polish the borders, with tape, etc., without also polishing the surface of the tooth.

DR. J. TAFT said the object in preparing these cavities is to enable us to put in, and to keep in, the fillings, so as to result in saving the teeth. To succeed in this there must be freedom of manipulation. Often there is a lack of proper care, the manipulations being too rough, the instruments too large, or badly adapted. We must always take into the account the texture of the tooth to be treated. Some teeth are very hard, and well organized, while others are not. The amount of cutting away, in any given case, will be greatly modified by such considerations. The builder always considers the qualities of his materials, and so must we, or we shall fail. The instrument-makers select the best steel for the finest instruments; but too often, he thought, we cut into frail teeth as if they were strong. Careful discrimination is needed in this direction, and also in reference to the vital condition of the tooth. When the pulp is dead the tooth is not so strong, and hence will bear less cutting to form the cavity as desired. There should be the least possible sacrifice of good material, and this should be in the direction the tooth will best bear it. If the cavity has a thick and a thin wall, the former should be relied on for the retaining points. A careful comparison should be made in each case, and often a compromise is necessary. The enamel, if possible, should be well supported by a layer of dentine. Avoid cutting through a thin layer of dentine quite to the enamel in forming retaining grooves or pits. Let the thin wall of the cavity be plane, and cut a groove on the thick one. The margins of the cavity must not be left thin and sharp, even if the shape of the tooth must be sacrificed in avoiding this condition. The margins of the cavities must be made smooth. Sometimes this can be done with the diamond disk. There could be no special direction as to form of cavity, as the proportion of the depth to the diameter. Let it be only as deep as is necessary, and as shallow as practicable. The walls need not be parallel; but each cavity must be formed so as to retain the filling. Judgment, and not specific rule, is called for here. In closing, he called attention to the terms used in designating the qualities of gold foil. Hard and cohesive, and soft and non-cohesive are used as relatively synonymous, but in truth cohesive gold is softer than non-cohesive.

DR. BERRY gave a description of teeth he saw in Mississippi, which had been separated by the Drs. Gardette, making wide

V-shaped spaces between them. The decay was arrested, and after forty years the teeth were still sound. He said they had been scrupulously cared for.

DR. WATT said that cases like those reported by Dr. Berry would not serve as safe precedents for a rule of practice. But few patients take good care of their teeth, and these teeth were probably of a more solid texture than usual. He said there was now in the city a tooth with a cavity which he had prepared for filling in 1855. The operation was interrupted by the arrival of an unannounced wedding party, and the cavity remains unfilled to this day; and there has not been the slightest decay in it. But he would not claim that it is a good way to prepare a cavity and then leave it for a quarter of a century.

DR. J. TAFT said that when the teeth are good, the patient's constitution strong and healthy, with an upward tendency, such operations may save the teeth, provided they are well cared for afterward; but he thought if we were to rely on free separation as a means of saving teeth, in nine cases out of ten we would find failures.

DR. BUTLER thought the opinion expressed by Dr. Jennings, that one dentist can not prepare cavities for another to fill, is not sound. He regarded a theoretical discussion of the preparation of cavities as almost useless. He exhibited specimens in the natural teeth in skeletons with various classes of cavities excavated and prepared as he would prepare such cavities for filling. This seemed to enable him to make himself understood, but it is not practicable to report the various suggestions he made in this connection.

DR. E. J. WAYE noticed that nearly all the remarks thus far had referred to the treatment of the cervical walls of the cavity. In filling the class under consideration, or, indeed, in filling any cavities, two points claim special attention,—to hermetically seal the cavity, and to fit the tooth for chewing without danger to the filling. In a compound cavity, say in an inferior bicuspid or molar, if the walls are parallel, and the cervical wall is the principal dependence for retention, what is there to hinder the plug tearing out when chewing. A groove near the outer part of the wall weakens the tooth. He said it was at the top, and not at the cervical wall that such a plug begins to tear out. He prefers

a "dovetail," and thinks one retaining pit, as described by Dr. Butler, is not enough.

DR. J. TAFT used a plain tumbler glass to illustrate how he would fill a compound or approximal cavity in a bicuspid. If the enamel is so perfect and so well supported at the crown fissure that it should not be disturbed, nearly always, with a fine fissure drill, a slight groove may be made at either side or inside of the cavity. A very slight dovetail is often all that is necessary. But we must always watch the character of the occlusion. May be the antagonizing tooth strikes so as to displace the filling, and then we must make very strong anchorage to be secure. It is well, then, to cut out the fissure and fill it, and then extend the gold over from the filling, welding securely all the way, and when all this is properly done, the gold will stay in the tooth.

DR. J. A. ROBINSON would make a crib by taking a 00 separating file and splitting it with shears, after having drawn the temper; then he would fit it to the tooth, and temper to a spring temper, which can be done by drawing the hard temper over a spirit lamp till oil burns off it. He would fit this crib over a bicuspid, thus making a compound cavity simple, and often fill without retaining pits. The crib renders the filling very easy to finish. Remember, though, that if the filling fails, it does so at the top—not at the bottom. So, in doubtful cases, he would weld strips of cohesive gold from the main filling to points of anchorage in the center, and sometimes he put in screws, made of gold wire, parallel with the tooth, to insure better anchorage. When the cavity extends under the gum, he found the crib described invaluable. Have it fit tightly and drive it gradually down after the rubber dam is in place, he could keep such cavities dry without trouble.

At the evening session Dr. Watt read a paper on AMMONIA (see February number of *THE JOURNAL*), and Dr. Robinson read one on DENTAL EDUCATION. A paper by Dr. W. D. Kempton, entitled "Some Evils and their Remedies," was read by the Secretary, and a paper on "Organization," by Dr. W. H. Atkinson, was read by Dr. W. P. Horton. All these were reported to the Society by the Committee on Volunteer Essays.

SECOND DAY—MORNING SESSION.

After some miscellaneous business Prof. J. H. Pooley, M. D., was introduced, and entertained the Society with a most eloquent

address, filled with wit and wisdom. He credited the dental profession with appropriating gold to its best uses, regarded dental surgery as a medical specialty, and hoped there would ever be the proper unity of feeling. He regarded our profession as an ally in dyspepsia, oral surgery, cleft palate, etc.; complimented Fox, Harris, and other authors of our text-books, and closed by remarking that though in different divisions, we are soldiers of the same army.

After the disposal of the miscellaneous business, the President announced the second subject for discussion in order, as follows:—

“WHAT SHALL BE DONE WITH THE FIRST PERMANENT MOLARS?”

We regret our inability to report some members who spoke on this subject; but physical laws are as inexorable as others.

DR. WATT said the question reminded him of the one that comes to the mind of every mother: What shall be done with the baby? and the general answer is, Nurse it. It should be kindly cared for, and he did not see that we could do any better with these molars. How they are to be cared for, depends on the circumstances of each case, just as in the case of the babe. There is no doubt that Our Father intended them to remain to old age. He thought that even a microscopic dissection would fail to reveal anything like preparation for death. And these molars are not an exception in the body. They were meant to stay, and should be treated accordingly, if in a normal condition. But, in a certain sense, there is no human physiology, but all is pathology, for man is a fallen being, and hence these molars often suffer. At the time of developing these teeth the child is often confined within badly ventilated rooms, and the teeth have a defective structure, and, therefore, decay readily. And before they have had time to consolidate, the child is often sent to school, and kept there six or eight hours a day, forbidden to move, and therefore in dread, and, when our primary schools are looked at through the eyes of an intelligent physician, scarce one healthy looking child in fifty can be found. Hence, our public schools, barely if at all, escape the charge of being nuisances. And all this is hard on the first molars. The child of eight is usually laden with brainwork beyond the academic student of twenty-five. The constitution becomes debilitated, and the secre-

tions depraved, and these teeth must decay. If the teeth are to be saved the child must not be loaded with lessons to be studied outside of school hours. When released from school he should feel as free as a colt turned on fresh pasture, and as contented as a lamb by the still waters. He cannot feel so when loaded with a long list of lessons, which are to be merely *recited* in school. When so treated the constitution of the child becomes so depraved that ammoniacal degeneration of tissue ensues. The buccal secretions become acid, and these molars are too soft to resist decay.

But, as usual, this rule has its exceptions. We are a mixed race. Jaws may copy the type of one race, while the teeth take after another. There may not be room for the full arch. Extraction may become necessary to make room. Now if these teeth are found decayed, or even defective, it may be best to remove them. And especially, if your patient is a little girl, and one of them has to be taken out, take all four out. Otherwise her features will be distorted; and beauty is a blessing that must not be recklessly sacrificed. I fear there is too much of a tendency in the profession to extract these teeth. If reasonably good, and they have room, they should be preserved. They have much to do with the nutrition of the child, especially from the sixth to the tenth year; and they are more essential to the preservation of beauty than any other teeth, except the cuspids,—preserving the features as they appear when the lips are closed. To extract all four at a single sitting may prove too severe a shock, but it is not usually difficult to secure successive engagements, as children at that age seem to instinctively understand that they are intended to be good looking.

DR. J. TAFT wished the profession would discard the name "six-year molars." Third molars is a better term. Care for these teeth should begin early—even with the mother. As dentists, our attention is not usually called to them till after their eruption. Hygiene does not receive sufficient attention. Nearly half our population die under five years of age. The young of domestic animals have no such fatality. When at least forty per cent. die under five years, there is something radically wrong in the care of children. This defective hygiene can not fail to act badly for the teeth. The defective nutrition is likely to cause atrophy of the enamel organ, and the result will be defective spots in the enamel. There will not be perfect junction

of enamel in the fissures, and this is more likely to occur with these molars than with any other teeth. The enamel organ may not find sufficient material, and this will result in pits or white spots, which invite decay. And the dentine may suffer likewise from a lack of proper nutrition. Even when teeth are erupted, they lack much solid material, and they should be nourished. They arrive at an inopportune period of life, as the constitution is specially irritable at six years. The mouth is not usually in good condition, and the teeth suffer for the want of exercise. These, or other teeth, are often tender, and so are not used, and they receive deposits on their surfaces in consequence. Every child should be urgently taught to use them. When not used, he had seen them covered with calcareous deposits, and he really wondered they are not worse.

The temporary molars, before shedding, he said, often acted injuriously toward the first permanent. They are often badly decayed, and in contact with them. In such cases the temporary should be cut away to prevent contact. The diamond disk is a good instrument for this purpose; and a V-shaped space ought to be made. Incipient decay on the surfaces should be polished off, and the fissures should be filled at once, if necessary, as they decay rapidly. He would repeat the importance of exercise, as it helps to keep the teeth clean, and the pressure strengthens and gives tone to the periosteal attachments. On this principle the teeth of tobacco chewers are apt to be found firmly attached to their sockets.

In general, he said, the second and third molars will not fill the space, hence the first ought to be saved. If the first are lost early, the germs of the second molars may come forward, in good position, but usually the teeth tip forward, and when developed, stand so that the corner of the crown strikes the opposing tooth in mastication. In this position they are not used in chewing. While the second molar usually tips forward, the second bicuspid generally tips backward, and thus proper antagonism is destroyed. In filling these teeth for very young persons, he preferred the use of tinfoil till they become somewhat consolidated, after which he would remove and fill with gold. They improve very rapidly in the way of consolidation from the seventh to the twelfth year. He said there were teeth then in the room that

had been thus filled twenty-five years ago—first tin, then gold—that were still good.

A member asked Dr. Taft if the abnormal states of the mouth produced by improper interference, as already described, might be transmitted to offspring.

DR. TAFT replied that it had been claimed, with a good degree of plausibility, that at least some accidental deformities had been thus handed down.

DR. WATT asked leave to read an item directly on this question, and, there being no objection, he read as follows:—

“TRANSMISSION OF TRAUMATIC LESION.”

“*Editor of the Ohio State Journal of Dental Science:*

“DEAR SIR:—Mrs. B., when a girl about twelve years of age, had a fall, striking upon a piece of broken crockeryware, which made a severe lacerated wound, posteriorly and to the right of the mental process of the inferior maxillary bone, nearly penetrating the floor of the mouth. She married, and eventually became the mother of five children, all of whom have the duplication of cicatrix, and in the same place as the initial lesion possessed by the mother.

“W. MITCHELL, Delaware, O.”

REMARKS.—Many years ago, in *The Dental Register*, we suggested the probable transmission of accidental deformities to offspring. To illustrate, we referred to the fact of a dog, which had been curtailed (no pun, for he was not a cur dog,) and which was so distinct from all other breeds, in communicating distances, that there was no difficulty in recognizing his offspring. This dog's descendants, in many cases, lacked caudal appendages. Some wiseacre tried to ridicule the statement, and possibly succeeded; but what will he do with Dr. Mitchell's case? W.

DR. WATT remarked that he regarded this as a very interesting item; and as dentists have much to do in causing “traumatic lesions,” he thought it ought to be promptly and widely published. He said he could not well use it in *THE JOURNAL* before February, and asked Dr. Taft if he would have room for it in the January Number of the *Register*, and on receiving an affirmative answer, he gave it to him. According to promise, it has appeared in the *Register*, accompanied by the writer's “Remarks,” and we take this mode of displaying it in *THE JOURNAL*, giving due credit to the *Register*. If accidental deformities are ordinarily thus transmissible, we really incur heavy responsibilities in our manifold mutilations.

DR. A. O. RAWLS, of Kentucky, being called on, said he was taken rather unawares, and was not fully ready to discuss a subject so important. He thought, however, that accidental deform-

ities were not usually transmitted. We must remember that it takes thousands of generations to change type. Such changes occur, but they require a long time.

In submitting this subject he supposed the committee wanted practical rather than theoretical discussion. It is hard for us to take the same view of the subject, for in accordance with the creed of the "Immortal J. N." we each occupy a different standpoint. In extracting the first molars we break the arch; but when they have to be taken out it is important to know at what age the operation should be performed. They are mostly gone before the patient is twenty years old; but when practicable they should be kept in till the second molars are properly articulated.

When the pulps of these teeth are exposed and inflamed, what shall be done? He did not believe they could be permanently saved after their pulps are destroyed. But this he thought was generally true of the other teeth.

DR. BUTLER thought it strange that there is so much talk about these teeth, while the others claim equal attention. A Boston and a New York clan are continually at war about these teeth, and he was sorry to see the subject started in our society. He could see no way of getting around the duty of trying to save all the teeth. How would it look to talk about which fingers shall be amputated in order to wearing smaller gloves? And the treatment of these teeth must come under the rules that govern in all surgical operations. No one can tell what ought to be done till he sees the individual case. When the first molars are removed early in life, the incisors are liable to be displaced by the occlusion of the mouth.

DR. L. BUFFETT did not understand that the question refers to teeth in a physiological state; hence we can, and ought to, talk of pathological conditions. And so we must have general principles to guide us in practice. Suppose we find these teeth chalky, soft, atrophied, or with pulps exposed, what is to be done? Says one, we don't know; but we ought to know. A decision to sacrifice or save should be made by something better than guesswork. In surgery we do cut off one finger to save the others, we do amputate the one eye to save the other. But the decision is arrived at properly through a knowledge of pathological principles. If by treatment we can save these teeth till they have time to calcify, if we can save them one year or more, we

should do so, thereby giving them the benefit of the doubt, just as we would try to save the eye for a time, if not likely to injure the other. If in three or four of them the pulps are exposed, would extract, just as we would amputate an eye. Such teeth usually die, as to their pulps, and they are then in a pathological condition. Their periosteal membranes are pathological—they have increased circulation, and become thickened. Alveolar abscess will supervene, and the child cannot endure the torture of delay. Would any one claim he could perfectly fill pulp cavities and canals in first molars, for patients eight or ten years old?

Such teeth as he had described must be extracted. He differed with some who claimed ability to save such, and he had seen mischief result from some such efforts. If the entire germ comes forward it is fortunate; but if the tooth tips forward the result is bad, but sometimes unavoidable.

DR. REHWINKEL said this matter reminded him of the amalgam question—it would come up. In his experience of twenty-seven years he had often made persistent efforts to save these teeth, and has very generally been sorry he had not extracted them at the first. He said this had been a very serious question with him. He had seen much harm done to other teeth by retaining these when badly defective. Cases vary, and each must be treated on its own merits. After they are out we can tell which was the proper treatment generally, but not positively before.

DR. G. W. KEELY said we have to take these teeth as we find them, and from eight to ten years of age they are usually found in some stage of rapid decay. He exhibited a plaster model of a mouth from which the first molars had been extracted early, and now, after the third molars are fully developed, the occlusion is absolutely perfect, as the plaster casts show. He showed a variety of models which illustrated different results from various modes of operating, but they need to be seen to be fully appreciated. We hope, however, to have a number of Dr. K.'s interesting cases illustrated in *THE JOURNAL*, and if not disappointed, our readers will enjoy a rich treat, as few are so competent in this direction.

(To be continued.)

INDEPENDENT JOURNALISM.

“WHEN in the course of human events it becomes necessary” to have a professional periodical published by parties who make or possess anything for sale, a limited portion of our population assumes that such a publication must, in the very nature of things, lack independence, and, to gratify the few who so assume, a periodical otherwise published is apt to call attention to this circumstance among the facts of its existence. The publishers of the *New England Journal of Dentistry*, etc., call attention to the fact that “the proprietors of this journal have no connection or interest whatever with any dental depot,” etc., and so they “are and propose to remain, entirely independent.” And they announce that those “who comprise the general editorship, are all actively engaged in the practice of dentistry and are entirely independent of all alliances,” etc.

Now we like independence, at least well enough to indulge in its use now and then; and we sincerely hope the new journal will be independent. But if those who control it can be independent only, or mainly because they are not connected with dental depots, then independent journalism has nothing to hope for from this source. If the journal has no collateral or incidental support, and must be therefore absolutely self-supporting, will it not be as much afraid of giving offence, and thereby losing, or failing to gain subscribers, as any depot journal could be? Then look at the facts: The publishers of the OHIO STATE JOURNAL sell goods; but they have no more to say about the reading pages, and claim no more control of them than do the proprietors of the *New York Tribune*. So particular are they in this respect, that they usually decline to give advice when asked. They wish their editor to do as he pleases; and they force him to do so if otherwise inclined.

Another journal published from a dental depot is owned by the editor; and what is there to prevent his independence? We might add; but these two specimens are enough, and we would have made no allusions to the subject had this been the first time the question of relative independence was thrust forward. If the new journal shall prove to be as independent as its Ohio namesake, or any other dental journal published in Ohio, we shall be satisfied, and shall rejoice in exchanging with it.

THE HUMAN RACE.

“Know ye not that they which run in a race run all, but one receiveth the prize?”

But we expected to have our prize, and wait a long time before our brother M. S. Dean would be called up to receive his. It almost seems that some people can't die, while others have only to lie down and quietly sleep themselves away from time to eternity. After all, can it be that it is so very far from here to yonder? When Death comes crowned as the King of Terrors, all tremble at his approach; but when he steps tip-toe, and whispers in still small voice, inviting to rest in his embracing arms, Death seems scarcely death; but our friends are taken all the same, “and the mourners go about the streets.” Yea, verily! for even though no widow's wail is around the bier, no orphan's tears glisten on the lids of bereaved childhood, no brother's or sister's lamentings resound, and no parent's fervent prayers ascend from the now deserted chamber, where our friend was all alone with death, yet was there no lack of mourners. Friends, by the hundred, brethren by the score, lament the loss sustained, and feel the grief caused by the departure of Dr. M. S. Dean.

A friend sent us the following slip from a newspaper, from which we infer the death occurred the 28th of January, 1882. The slip is without date or title:

OBITUARY.

DR. M. S. DEAN.

The dental profession of this city, state, and country mourns the loss of Dr. M. S. Dean, who died Saturday. He had been ailing very slightly for a few days, but passed Friday in the discharge of his professional duties, and enjoyed the evening of that day with friends socially and apparently in good health, but was found in his bed Saturday morning with his eyes closed in the last sleep, having evidently passed over the river peacefully and without a struggle. The deceased was a native of Vermont, and 57 years of age. His early years of practice were spent in Dundas, Canada, and Marshall, Mich., from which latter place he came to Chicago in 1864, since which time he has been well known as one of the leading minds in his chosen calling. He was an assiduous student, a ripe scholar, a skillful though unostentatious practitioner, and a most genial and warm-hearted companion.

At a meeting of his confreres, held at the Palmer House Saturday evening, the general feeling of sorrow was depicted upon every countenance, both at the departure of an esteemed brother, and at the loss sustained by the dental service. He filled a place that must remain vacant for some time. His labors of late years

had been largely devoted to researches in dental histology, in which his thought has become the established doctrine. In 1880 he published a book on the origin and formation of the Dental Follicle, which was a translation from the French of Drs. Legros and Magitot, with numerous explanatory notes by the translator, which is now a standard text-book. He had received from his profession all the honors it was in its power to bestow upon him, having been President of the national, state, and city societies of dentists. In his daily intercourse with men he was the soul of integrity, and possessed of a keen sense of justice and most affable manners, he was universally esteemed. He was never married, and leaves no near relatives here. His remains will be taken to Mystic, Conn., for interment. The funeral will take place from the residence of Dr. J. N. Crouse, at 2,101 Michigan avenue, at 3:45 o'clock to-day. The remains will be taken to the Twenty-second street depot, and sent in charge of a delegate of the Chicago Dental Society to the final resting-place.

CHLOROFORM — FATAL CASE.

WE make a few extracts from the *Chicago Inter-Ocean*, of December 20th, 1881, sent us by our friend Prof. T. W. Brophy, for which he will please accept our thanks :

“On the 20th of the present month a man named E. H. Tapper, from Hammond, Indiana, called at the dental office of Sovereign Brothers, at No. 107 Clark Street, to have some teeth extracted. He seemed to be under the influence of liquor, and the dentists demurred in giving him chloroform, but he insisted upon the operation being performed, and finally the dentist sent for Dr. Lewis Dodge to administer the chloroform, while Tapper went out after a friend, Mr. F. G. Dannecker, an attorney, to be a ‘witness to the bargain,’ as he said. The drug was administered, and, when in the proper state of insensibility, the dentist began extracting the teeth. He suddenly stopped when he saw the man didn’t look right, and efforts were made to resuscitate him, but the man was a corpse.

“The inquest was held yesterday morning in the Coroner’s office. The jury being present and sworn, the examination of witnesses began. Mr. Dannecker, the friend of the deceased, was present, and in a great measure conducted the examinations.

“The first witness called was Dr. Lewis Dodge, who resided at 219 East Ohio Street; had practiced medicine 35 years; graduated from the Homeopathic Medical College, of Philadelphia; had his diploma and certificate from the State Board of Health—the last produced in court; was called on to administer chloro-

form on the 20th of December, about 3 p. m., in the office of Sovereign Brothers; had been called there several times previously; found on the last visit to the office the deceased; examined over his chest to see if there were any warnings against it; the inference was that deceased wanted it; witness placed his ear carefully over chest of the deceased and examined his pulse; the examination lasted, perhaps, two or three minutes, as usual in such cases; he caused the vest to be unloosened so there would be no obstruction to respiration; had administered chloroform a great many times. The bottle and cup were produced here, and the doctor explained to the jury the mode of applying it. Perhaps half an ounce was given; the patient was considerably excited, and in such cases it took longer for the chloroform to take effect; this time it required perhaps half an hour; there was nothing else unusual in the operation; they were guided by the effects and not by the quantity inhaled; he had been singing in the German language perhaps half a minute before he died; there was nothing unusual in his appearance, would not say how many teeth had been extracted; there was no struggle, but a gradual sinking observed by the dentist and himself; means were immediately taken for resuscitation; was perfectly familiar with the methods of resuscitation; it could not have been more than two minutes after the fainting when he died; first raised up the body in the chair and rotated it; then laid him down on the floor with his head lower than his body; requested one of the Sovereign brothers to call Dr. Dyas, who had his office on the same floor; Dr. Dyas came in and helped attempt artificial respiration, as described in the books; this was continued ten or twenty minutes, even after the symptoms were that life had departed; ammonia was applied to his nostrils and a cloth wet with alcohol placed over his heart; he was also chafed with alcohol over the chest and abdomen; his bare feet were slapped with a wet towel, also his forehead and face; did not pull his tongue out, because he thought it a waste of time, as other things were more important: there had been very little hemorrhage from the teeth, not enough to make its way to the throat.

After he was thoroughly satisfied that life was extinct witness telephoned for the Coroner; in the chair the patient was reclined rather more than is usual in extracting teeth; his head was as far back as the chair would admit, very near a horizontal

position ; never hastened the inhalation ; the window was opened to admit some fresh air ; was also interested in a real estate office, but paid little attention to it ; the patient remarked several times, 'Feel my pulse, Doctor, don't kill me ;' this is very common, and is not regarded as serious.

"Mr. F. G. Dannecker here asked witness if he remembered that he advised against the administration of chloroform, and the Doctor replied that he did. The first inhalation of chloroform usually quickens the pulse, but after that there is a little depression ; the pulsation continued after witness had ceased to give the deceased chloroform ; there was nothing unusual in his appearance ; the pulse was about as usual up to the time when he turned him over to the dentist ; when deaths occur from syncope it is like a stroke of lightning, caused by a stoppage of the heart.

"In answer to a question from Dr. DeWolf, witness said the patient's condition would be considered by himself dangerous, and he should never administer chloroform again to a man when he had premonitions of danger ; witness said the man seemed most unusually excited ; could not say that he had his finger on the pulse when it stopped ; the man made several motions with his right leg, as if pushing away something ; witness' opinion was that the man died from paralysis of the heart ; this was the first fatal case he ever had ; had used it in over a thousand cases with no ill effects ; many times patients were in as excitable a condition as in this case ; the chloroform was of the usual strength and pure.

"Dr. Robert L. Rea—resided at 112 East Monroe street, practicing thirty years ; gave his method of giving chloroform ; preferred an empty stomach, and gave from two to four teaspoonfuls of either brandy or whisky ; always preferred to give ether, beginning slowly, and allowing air to enter freely ; constantly kept his finger on the pulse ; wanted to insure the falling forward of the tongue, and so always pulled the tongue forward and the lower jaw at the same time ; never had any serious results ; all anæsthetics are dangerous, even nitrous-oxide ; no physical examination will denote whether it is safe or not for any patient ; in a case of paralysis of the heart it would make but very little difference what was done, but everything possible should be done in any case ; in this one he should have done some things differently ; dentists should be required to keep an electric battery in

their offices ready for use ; a physician should always be called on to decide whether it was safe to administer chloroform or not ; this could be decided in a minute or two ; an overdose of liquor would add to the effect of the chloroform ; would not administer it for 30 minutes under any circumstances for fear of a cumulative effect.

"Dr. Walter W. Allport was called. He said he regarded the operation of extracting teeth as not of sufficient consequence to warrant the administration of chloroform ; was familiar with the use of anæsthetics ; never used it to exceed ten or fifteen minutes ; if chloroform is administered very slowly, and atmospheric air allowed to enter, it might not be dangerous to apply it for 30 minutes ; it is better to have it take effect as soon as possible and avoid cumulative effects ; thought the methods employed in this case for resuscitation were hardly sufficient ; efforts should be kept up for half or three-fourths of an hour, and require very prompt and energetic action ; statistics show that the deaths reported from ether are about 1 in 23,000 ; from chloroform 1 in 3,000 ; from both ether and chloroform 1 in 5,000."

We regard it as quite unnecessary to give all the testimony before the Coroner. The specimens given are fair types of the rest ; and the result was the following verdict :

"That Edgar H. Tapper came to his death Dec. 20, at the dental office of Sovereign Bros., No. 107 Clark street, from suffocation caused by pulmonary congestion and paralysis of the heart, caused by the inhalation of chloroform administered by Dr. Lewis Dodge for the purpose of having his teeth extracted at said dental office, and we, the jury, deprecate the use of chloroform in such cases. That we do not consider that, with the known danger of administering chloroform, sufficient precautions were observed, and that the efforts for his restoration should have been more vigorous and protracted, and will suggest that dentists should be compelled to keep all proper appliances for resuscitating patients using anæsthetics in their offices."

It is doubtful if anything would have saved this patient after the alarming symptoms were first noticed ; but for aught that appears there may have been no artificial respiration whatever. The motions were made, but no one seems to know whether or not the passage into the larynx was obstructed. A clot may have rested on the epiglottis, or the tongue may have been retracted so

as to have completely shut the air passage. The trouble is that presence of mind is not retained. Any one who has not the ability to act calmly in such emergencies, should omit all such operations. We would have lost a patient once, but that on resorting to artificial respiration, aided by Mrs. W., we both noticed that no air passed to the lungs, and we promptly removed a clot from the glottis.

But it is bad practice to give chloroform, or perhaps any other anæsthetic against our own inclinations. It seems that Dr. Dodge, as well as the dentists, advised against the resort to anæsthetics, yet the most dangerous one is given, with fatal result.

We give elsewhere a case almost fatal. Had Dr. S. lost all self-possession, and rushed around for physicians to take charge of the case, another inquest would have been needed, in all probability. His mode of producing artificial respiration is good—perhaps not the very best, but vastly superior to the ordinary resorts. The ammonia was good, providing there was any respiration, even artificial. The sudden dropping of the head after having gently raised it, was excellent, especially if the head was slightly lower than the body at the same time. But, after all, presence of mind and self-possession, won the victory in this case. We can sympathize with the Doctor in his long twenty minutes. We fought camphor-poisoning, by artificial respiration, for two hours and forty minutes, and, like Dr. S., gained the victory.

Correspondence.

“I charge you that this epistle be read.”

Editor of the Ohio State Journal of Dental Science:

It will be remembered that in our last communication we left our friend, Mr. Hypothetical, with some good resolutions formed, after having passed through that severe, and to him sad school of experience, and that he was ready to avail himself of the knowledge thus acquired. I am glad to be able to state he was not long in placing himself in the hands of Dr. Geofield in whom he found a pleasant and affable gentleman. It may be inferred, and right-

ly, that Dr. G., after a careful examination of the case, considered it his first duty to see that Mr. H.'s natural teeth were put in proper condition before inserting artificial ones. He was not long in discovering the defects around the once beautiful fillings of Dr. M., heretofore alluded to; occasioned in part, it may be, by a want of proper care on the part of Mr. H., but largely due to the specimens of "Simplified Mechanical Dentistry" supplied to him by Dr. N. O. Fitz. That Dr. G. found the largest and most difficult part of the work to be performed for Mr. H. to consist in the removal of several of his fillings, and replacing them with others, and repairing here and there one, may be readily inferred. Whether Dr. G. succeeded in saving the pulp alive in the bicuspid which had been aching at intervals for four or five weeks I am not able to state. It is to be hoped he did, though Dr. Goe-field is not infallible; for we have heard him frankly admit, in open meeting, that his attempts at capping over exposed pulps frequently failed. It is sufficient to know that the operative work done for Mr. H. was fully up to the highest standard, and proved entirely satisfactory.

The little item of seventy-five dollars which it cost, Mr. H. regarded as a bill for tuition in the school through which he had passed. I need hardly give in detail, step by step, how Dr. G. proceeded to "manufacture" Mr. H. a set of teeth on gold-plate. There are many in the profession who know theoretically how it is done, but I am sorry to say, too few who can do it. Dr. G., before taking an impression of the mouth, or deciding on the material he would use in doing so, made a careful observation, noticing where the tissue was soft and yielding, where firm and hard. This to enable him to so form his plate that it would sit evenly and firmly on the gum. He noticed the articulation and decided the size and shape of his plate. In fact he planned his whole case, and knew just what he wanted to make and how to make it. Mentally his case was done, he knew exactly the kind of teeth he required, and he saw as plainly just how his patient was going to look as he would after having put the completed denture in the mouth. This much of the imaginative is required in the manufacture of artificial dentures, if the best results are to be attained.

The discriminating judgment and nice taste of Dr. G. came into play in the selection of the teeth, and his excellent manipu-

lative skill in fitting them and making and finishing the plate. Wanting greatly in any of these requisites, Mr. H. would likely have fared little better than he did at the hands of Dr. N. O. Fitz; but thanks to the good and faithful services rendered by Dr. G., he was supplied with a set of teeth at once comfortable, and giving to his face and features a natural and pleasant expression. I need hardly add, Mr. Editor, that Mr. H. was highly gratified, and went home a happy man, rejoicing that at last he had found a dentist in whom he had entire confidence. His welcome home was most cordial. This time the greetings of wife, baby, children, and Towser, were hearty and natural. In the Hypothetical Household, from this time on, peace and quiet reigned supreme.

In conclusion, allow me to ask the readers of the JOURNAL if the incidents and experiences of our patient in his attempts at getting and wearing artificial teeth, and the annoyance and mortification he was subjected to, are greatly exaggerated, and whether some of them may not have a Dr. N. O. Fitz practicing just around the corner. And we would like to ask Dr. Metcalf, after he has closed the doors of our dental schools against those desiring to practice mechanical dentistry, and the present small supply of Dr. Goefield's die off, what he proposes to do about it. The action of the Michigan State Dental Society, on the resolution of Dr. M., should it again be presented, will be looked forward to with some interest by

F. M.

DENTAL SYMBOLISM.

BY DR. STEWART J. SPENCE, NORTH SAN JUAN, CALIFORNIA.

"THERE is one rare strange virtue in his speeches,
The secret of their mastery — *they are short.*" — HALLECK.

It is to be regretfully acknowledged that the terms used to denominate the teeth and their various parts are far from possessing the above mentioned "rare strange virtue." While chemical symbolism and the metric system have so beautifully succeeded in making crooked places straight in their respective directions, dental terminology still labors under an incubus of *cumbersome, indefinite and complex* denominations — *cumbersome*, in the num-

ber of words required to indicate a certain tooth, or part of a tooth; *indefinite*, in that some of the terms are not self-explaining; and *complex*, in that more than one name is possessed by certain teeth.

A glance at these complications will, I think, induce any one to exonerate me from the charge of being a carping critic, should such a charge be forming in the minds of a reader.

Glance firstly at the terms labial, buccal, lingual, and palatal. Whence the necessity of more than two words, such as vestibular and oral? and who shall say where buccal terminates and labial begins?

Again, we have cuspids, alias canines; bicuspid, alias premolars; and third molars, alias dens-sapientiae. We have central and lateral, and first and second incisors; sixth year molars, and first molars, etc.

We have the terms mesial and distal, but they do not define the location of the center they refer to, whether the center of the arch, the tooth, or the oral chamber. We are also supplied with anterior and posterior, which in certain twisted incisors become somewhat inapplicable. Then we speak of approximal, but unfortunately the teeth are approximated when occluded. And why the simple Saxon, upper and lower, should be abandoned for the Latinized, and much less definite, superior and inferior, is difficult to explain, unless on the hypothesis that dentists are somewhat given to complicated verbosity. "Crown cavity" is a misnomer, if used exclusively for cavities in the grinding surface.

The time cannot be far distant when dentistry will break from these trammels, and adopt a system of denomination less objectionable. With the hope of hastening on such an era, I will submit a system of symbolism used by the writer with much satisfaction.

Commencing with the median line between the central incisors of each jaw, I divide the thirty-two teeth into four divisions of eight each, marking each division with a letter, thus:

A 1 to 8—The right superior teeth.

B 1 to 8—The left " "

C 1 to 8—The right inferior " "

D 1 to 8—The left " "

Recognizing five surfaces to each tooth, I thus signify them:

I—The anterior approximal surface.

$\overline{2}$ = The anterior labial or buccal surface.

$\overline{3}$ = The posterior approximal surface.

$\overline{4}$ = The lingual or palatal surface.

$\overline{5}$ = The incising or grinding surface.

The four angles of a tooth are indicated thus :

$\hat{1}$ The labial or buccal anterior angle.

$\hat{2}$ The labial or posterior angle.

$\hat{3}$ The palatal or lingual posterior angle.

$\hat{4}$ The palatal or lingual anterior angle.

The usual complications of a cavity are noted thus :

— (a breve) = cervical.

° (a degree) = exposed pulp.

* (asterisk) = root cavity.

Thus, the following two definitions are of the same value :

Cervical cavity on the posterior approximal surfaces and palatal angle of the superior right second bicuspid: exposed pulp.

A 5, $\overline{3}^{\circ} - \hat{3}$

The plus mark is used in its common signification, uniting the surface and angle in one cavity ; the breve under each signifies that both angle and surface are implicated in the cervical complication. A comma between them, and the plus mark absent, would indicate two cavities.

Similar symbolism may be extended to the materials used in filling teeth, but as it is the object of this paper to throw out the suggestion that some such system may be used, rather than to prescribe a certain one, I will not extend my remarks further.

Societies.

“ Wherewith one may edify another.”

MICHIGAN STATE DENTAL ASSOCIATION—ANNUAL MEETING.

Editor of the Ohio State Journal of Dental Science:—

THE Michigan State Dental Association meets March 29th, at 7:30 P. M., at Detroit. A full attendance is desired. This is the quarter centennial of the Association, and it will be celebrated

accordingly. A history of the Association is being prepared and will be read at the coming meeting, and the whole to conclude with a grand banquet.

E. C. MOORE, *Secretary*.

DENTAL DEALERS' CONVENTION.

A CONVENTION of dealers and manufacturers of dental goods was held in the city of Pittsburgh, Penn., on the 8th and 9th of February, 1882, in pursuance of a call issued by a number of dealers for the purpose of securing harmony in the trade, and of dealing justly with customers by adopting a fair and equitable one-price system.

J. Littlefield, of the house of Codman & Shurtleff, Boston, was elected President, and Lee S. Smith, of Pittsburgh, Secretary.

A permanent organization was resolved upon, and a committee was appointed to perfect the details thereof.

Resolutions were adopted looking to the regulation of prices and to business intercourse between the members of the association.

The utmost harmony and good feeling prevailed, and the Convention adjourned to meet at the call of the Committee on Permanent Organization.

The following houses were represented:—

Lee S. Smith; W. M. Herriott; Ransom & Randolph; Cogswell & Gee; Spencer & Crocker; George W. Fels; L. J. Frazee; Buffalo Dental Manufacturing Co.; H. J. Caulkins; J. R. Tantom & Co.; A. M. Leslie & Co.; The S. S. White Dental Manufacturing Co.; H. D. Justi; Chicago Refining Co.; Gideon Sibley; C. B. Woodworth & Co.; J. L. Brewster, jr.; Hood & Reynolds; J. B. Dunlevy; Lukens & Whittington; Codman & Shurtleff.

Notices of "Book and Pamphlets" crowded out. Will appear in March number.

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Contributions.

“A word fitly spoken is like apples of gold”—SOLOMON.

OPERATIVE DENTISTRY.

BY DR. GEO. S. MILES, OF JERSEYVILLE.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

IN responding to the request of the Executive Committee, I do not expect to say anything that will be new to the members of this Society.

I presume the committee felt that this branch of the profession was of such importance that some space in the programme should be allotted to it, if but to open the discussion, which may be so profitably continued by the members here present.

Nearly all the different pursuits in life, trades and professions, are divided into sections or branches in such a manner that a person following one or two will achieve greater perfection and influence than if he endeavored to attend to all the different branches of the trade or profession with which he is connected.

In the manufacture of the watch; an article so indispensable to every gentleman; instead of the manufacture of all its many parts being confided to one individual, the mechanism of it is divided into many sections, and one person gives his or her attention to one particular part, another to another, and so on until the beautiful chronometer is produced, each part fitting

with exact nicety, and keeping time to the delight and admiration of the most critical.

The steam engine, printing press, electric, telegraphic machine, and many other important and wonderful inventions that are interwoven with the welfare and business existence of the race, could never have been produced and made to perform the duties required of them with that exact nicety and satisfaction but for the fact that their several parts were allotted each to skilled workmen of tried capacity.

The same principle applies to the several professions that does to mechanical arts. The practitioner at law could not have attained the high position that many of the profession in this country now occupy, had they undertaken to counsel and advise within the whole range of jurisprudence, for it is patent to all that the most eminent practitioners, those who have accomplished the most for their clients, as well as themselves, are those who have confined themselves to a limited range of practice.

The same principle applies to the practice of medicine, and especially is such the case if dentistry is a specialty in medicine. Not many years ago it was not unusual for a person to combine the practice of dentistry with some other calling or profession. It seemed to be quite popular for clergymen to divide their clerical labor with dental practice; I suppose, with the idea that while ministering to their spiritual needs they could also attend to their physical requirements, and at the same time replenish their exchequer. So far as my knowledge extends, these gentlemen have been about equally successful as preachers and dentists, and as the standard of dentistry has advanced, they have found there was enough range in their profession to engage one person's attention, and they have withdrawn, and many are now in the insurance business, for which I presume they are better adapted. All agree at this day that there is enough in the practice of dentistry to demand a person's whole attention. How best to acquire the proper information and practical experience to fit a person for the work, is the conundrum. A thorough knowledge of medicine is no disadvantage to the dentist, but it is certainly an accomplishment. The same may be said of law and theology.

It is not deemed important that a practitioner at law should understand theology, or that the teacher of theology should be profound in the mysteries of law; and while dentistry may be

considered to be more intimately connected with medicine than the other professions are with each other, the graduate of medicine is very poorly fitted to practice dentistry ; and yet he should be, and is, I doubt not, prepared to practice surgery, treat diseases of the eye and ear, and many other diseases of the system which are recognized as specialties in medicine when practiced as such. Wherever dentistry is introduced in a medical school an additional corps of teachers is required, and at the present day, as they exist, I have no doubt the graduate of medicine obtains information that he would not receive but for this fact. At the same time the dental student is benefited from what instruction he may receive in medicine. But as no one person can know everything, it does not seem important that a dental student should be required to pursue and understand all of those branches of medicine and the nature and treatment of all the diseases of the human system, when he never expects to make any use of the instruction thus obtained ; but thorough instruction in all those branches of dental science and art, the pathology of the dental organs, and the treatment of those diseases in any way connected with the oral cavity, or appertaining to the duties of the dental practitioner, would prepare the student better for the work selected. The mind of the dental student should not be diverted from his subject, but his whole attention given to the central aim of his life.

The subject of operative dentistry presents a wide field for scientific investigation and artistic study. From infancy to old age the operator is called upon to diagnose the many troubles of the oral cavity, and exercise what knowledge and skill he possesses in ministering to the needs of those thus afflicted. Very few people in this era are exempt from the necessity for the services of a dentist ; hence, it is very important that thorough investigation be made of each case that presents itself, so that correct conclusions may be drawn, and a proper course of treatment decided upon.

In examining the teeth, a delicate instrument is needed to inspect carefully each tooth, the interstices in the grinding surfaces, between the teeth, around the necks of the teeth, and often under the gums. In many cases this can only be done satisfactorily by the use of floss silk, drawn between the teeth, and by wedging the teeth apart.

Before commencing to fill teeth that are decayed, it is often best to remove every particle of tartar that may be attached to them. In some cases it is imperative. No one should allow a patient to go from his office understanding her work is completed, who desires her teeth put in proper condition, without seeing they are perfectly free from tartar, and the patient instructed how to keep them free from the accumulation.

Upon examination of a case we find quite a number of teeth decayed in different parts of the mouth. In filling teeth that are decayed upon the proximal surfaces of the incisors, sufficient space should be made to prepare the cavity, insert the filling, condense and finish the same in a proper manner. How best to obtain this space so that the filling may be firmly condensed around the margins, and after completion the tooth present the proper shape for durability and general appearance, is the question.

Judgment must be used as the case presents itself, depending upon the quality, shape, and position of the teeth and the extent of the decay. Where the incisors are considerably wider at and near the cutting edge, the proximal surfaces touching each other, with decay near the neck of the tooth, reaching near the point of contact, I think the space should be obtained by wedging. This may be accomplished with cotton or orange wood, as you prefer. Very little, if any, filing should be done, from the fact that very soon after the operation is completed, the teeth will come in contact again, and the surfaces filed would be broader, and without the rounded contour which was natural to them. Substances would collect between them, and decay would be more liable to supervene. Where the decay is near the cutting edge, in proximal cavities, and the position of the teeth to each other such that they would impinge upon each other even after considerable tooth structure was removed, I would prefer not to injure the shape of the tooth by removing much of the tooth substance, but obtain space by wedging and by taking away only the slender edge of the walls, or portion of the walls, and retain the proper shape of the teeth—the contour of the filling depending upon the extent of the decay, but so shaped that as small a portion as possible would press upon the adjacent tooth. A flat surface should be avoided in proximal fillings, and care should be taken that the other extreme be not reached, and a too prominent contour given to the filling for permanency.

If practicable, the teeth should be left, after the fillings are completed, with a narrow space between them, in order that they may be the more easily kept clean. The molars and bicuspid's not being so exposed to view, while it is desirable to retain a proper shape, I do not deem it as important to retain so closely the shape of the tooth as in the incisors, but such separations should be made and frail walls cut away as will enable the operator to insert a filling for the longest period.

Much has been said and written during the past few years in regard to materials for filling teeth—considerable that is quite valuable; not a little that I believe had better not have been written, if indeed it has not been pernicious in its influence upon others who may have inclined to a system or adopted suggestions without sufficient investigation.

There has been a tendency to run to extremes in the use of materials and appliances in our profession, and also an inclination to follow in grooves or the tracks of others, rather than to exercise one's own judgment of what is best for each individual case.

Of the materials for filling teeth, gold should stand *first* as the *jewel* to take the place of lost tooth structure. By far the larger proportion of teeth may be filled with gold in some of its forms of preparation, in a more durable manner, and present a more beautiful and cleanly appearance, than other now discovered preparations; especially is gold preferable for the incisors and cuspid's. There are many large cavities of decay in the molars and bicuspid's, where the walls are frail, in which an amalgam preparation may be used, and preserve the teeth for a longer period than if the cavities were filled with gold. Indeed, teeth may be filled with this material the walls of which are so frail that it would be nearly if not quite impossible to fill with gold. Again, the expense of inserting these large gold fillings is such as to debar many from having their teeth attended to, unless some cheaper material can be used. They cannot afford to pay the price for these large gold fillings that would be equitable—at least they think they can not, and they will not—and the question hinges right here: Shall these teeth be allowed to continue in their onward career to destruction, and ultimately be shelled from the mouth as you would shell peas from the pod, by the artificial tooth *pend*, or shall we arrest the decay and fill these teeth with amalgam or tin, as the case may be? I believe in sav-

ing the teeth. One reason for the dislike of amalgam has been, I think, the quality of the preparation, and the neglect in the preparation of the cavity of decay, and the proper introduction and finishing of the filling. Quite as much care should be exercised in filling with amalgam as with gold.

It is equally important to use the rubber dam, for it is very essential to keep all moisture from the filling, while it is being inserted and for a half hour or more after. By this means you are able to finish the filling in a more perfect manner, giving it a finer and more complete finish after the material has hardened considerably, which is a great desideratum.

Attention should be paid to the saving of children's teeth, so that they may be used for mastication, until the natural period for their removal, for the permanent set. Tin foil and gutta-percha are very good materials to use in these teeth, and will generally fulfill the requirements demanded of them.

Many operators have a preference in the amalgams now manufactured. Others seem to act upon the theory that they are all of about the same class, and use the cheapest. Each manufacturer claims his to be equal if not superior to others. The opinions of those qualified to judge, who are not interested in the sale of the article, I think would be preferable. But I think what would be still better would be the appointment of a competent committee by this society, or by the "American Dental Association," to investigate and experiment in regard to the proper ingredients, and the relative proportions of each, until (if possible) they can report a formula of a preparation that will not shrink from the walls, and that is not injurious to tooth structure if proper care is taken in introducing the filling.

The operative dentist is often called upon to perform operations in the oral cavity, other than filling teeth. His ingenuity and skill are not infrequently brought into use in correcting irregularities of teeth. Children's teeth, in consequence of the neglect of parents, or imperfect development of the maxilla, are very often crowded from that symmetrical position designed by nature, and present a very forbidding appearance. In youth this condition of affairs may be changed. The crowded condition being removed, not only is their liability to decay greatly lessened, but a wonderful change wrought in the whole facial expression of the patient. At times this would require the removal of a bicus-

pid or molar, to make room, but very seldom, if ever, the extraction of any tooth anterior to these; for it is very important that the incisors and cuspids should be saved for general appearance. Various, and in some cases quite ingenious, appliances are constructed for changing the position of the teeth, requiring considerable time in accomplishing the purpose; but often this can be effected very easily by the use of silk ligatures attached to the teeth, connected with rubber rings. Frequently we see an incisor that has been allowed to strike behind the lower teeth. This position may be very readily changed by adjusting a plate over several of the lower teeth, so arranged that the incisor desired to be moved will strike upon an inclined plane in closing the mouth. We see teeth almost every day with exposed pulps. It is highly important to preserve this vital principle of the tooth, if possible. This can be done if there is no inflammation, or chronic disease, in or about the organ, by covering the nerve with Fletcher's or Weston's preparation. The antiseptic pulp dressing of Dr. Spalding I believe is a very good article for this purpose: covering it with oxychloride and, after the zinc filling is hard, fill the tooth as usual. If the pulp is in an inflamed condition, or dead, it should be removed to the apex of the root, the nerve cavity purified, and the canals filled, care being taken to hermetically seal the nerve cavity at the apex, that no moisture may permeate the filling.

Many teeth are neglected until the crowns are broken off, or nearly so. In many of these cases, if the root is strong, I think it better to attach an artificial crown than to remove the root and subject the patient to the necessity of wearing a plate. While it is possible and practicable to save the root of a tooth, it should be allowed to remain, and perform the function for which it was designed. The pathological condition of the teeth and oral cavity generally should receive careful attention at the hands of the dentist. From childhood to old age there are many diseases of the teeth, gums and alveoli that require attentive care, or serious results are sure to supervene. But it is impossible, nor is it necessary, to allude to them at this time, as they will be treated, or have been, in papers devoted to those special points.

Each year is developing some new thought, new method, new material. May it be ours to discriminate in their application, and act intelligently to elevate the standard and advance the interests of our profession.—*Illinois State Dental Society Report.*

WHAT MUST BE THE PREPARATION FOR THE SUCCESSFUL PRACTICE OF DENTISTRY IN THE FUTURE?

BY DR. C. A. KITCHEN, OF ROCKFORD.

[Read before the Illinois State Dental Society, held at Rock Island, May 10, 1881.]

THE title suggests several questions. 1st. What is success in the practice of dentistry? 2d. What may we expect the future of dentistry to be? And 3d. What preparation will be needed to enable one to achieve success?

That my object may not be misunderstood in the selection of this title, I will confess to you in the beginning that I shall not be able to advance any new ideas about success. I am not a prophet to foretell what the future will develop, nor can I give directions by which a competence may be secured or a prominent position reached: I only hope by offering a few thoughts to induce discussion that will draw forth the opinions of those present whose views are well worthy our consideration.

There is not an occupation which does not offer opportunities for success. Almost *every* man hopes and expects to succeed, but there are many diverging ranks which seem to approach it, and there is a vast difference between temporary and *permanent*, apparent and *real* success, which very many fail to *fully* comprehend.

Men are often disappointed and unhappy because they cannot reach by easy and direct paths the same results others have achieved only after years of *patient toil*. All around us may be seen those who have under estimated *true* success, and who have disregarded the fixed laws and fundamental principles which underlie it.

Men who engage in the struggle for wealth without capital or business capacity, in opposition to those who have both combined, are placed at great disadvantage. In the learned professions knowledge and skill *represent* capital, and he who does not possess them will meet with discouragement and disaster in the strife with cultured and skillful competitors.

If we scrutinize closely—get at inside *facts*—we will find in the history of successes and failures that “There *is* no easy path to fortune;” “Nor is there a royal road to learning.”

Success in our calling does not materially differ from that in other professions, or in other pursuits. Here, as elsewhere, men mistake the *apparent* for the *real*; yet the rule holds good with us that "there is no excellence without *great labor*." There is a class who avoid the labor of preparation, yet *seem* to be prosperous. They try in every way to create such an impression, for *effect*. They hope, by advertisements, offers of cheap rates, newspaper puffs, and other means well known and practiced by them, to convince the public that they are doing a large business, and are therefore worthy of confidence and patronage. These men care nothing for the advancement of the profession—they realize that it has already advanced beyond *their* reach. They take no interest in convention work, but use considerable energy in devising plans to thwart the efforts put forth by others to elevate the standard.

Observe this class closely; mark their influence upon young men; examine the work of their hands—and you will have to pronounce them *miserable failures*.

There is another class whose motives are very different. They take a lively *interest* in progress; they love to convene, to interchange views and examine each other's methods; they desire to encourage and assist worthy younger men; they honor and emulate our leaders; they strive constantly to render honorable, intelligent and skillful services to their patrons.

If I have interpreted correctly the *meaning* of true success, we must conclude the *latter* are the *successful* men of to-day.

What of the future? We know what has caused progress in the past; we know that these same agencies exist, with even greater power, now. *These*, with certain *other* unmistakable signs, point to still greater developments in the future.

There never was a time when the necessity for thorough education was so generally recognized as at the present. Prominent educators and thoughtful writers see the errors in our common school system, and are urging radical changes and reforms. Polytechnic, industrial, and other schools for special training are springing into existence; leading medical men are striving to elevate their standard of learning. The same subject has elicited earnest attention and warm discussion in our dental associations. Everywhere this desire for advancement is manifested. As a

result, plans will be evolved by which both general and special education will be more thorough and effective.

Our profession must not lag behind in this movement *along the line*. With increased opportunities there will be greater possibilities and responsibilities which the dentist of the future will be required to meet.

The tendency in all progressive scientific pursuits is toward a division of labor, a centralization of thought and effort upon a particular part or branch. Dentistry is no exception to this. In the larger cities it has been practically separated into departments already. It is not improbable that another division will be made in time.

Many of our ambitious and aspiring men are seeking more light continually. Through their investigations we shall all come to know more about the *causes* of decay in teeth, and more about the indirect as well as the direct effects of diseased teeth upon the system. With this added knowledge there will arise the desire to treat diseases that are not now considered within our realm.

The competent dentist may with propriety correctly diagnose and intelligently treat patients for many of the nervous derangements which are so alarmingly prevalent in this country. He may also be called upon to perform all surgical operations about the mouth. Physicians generally will gladly direct this class of patients to dentists, if assured that they are prepared to render the services needed.

Dr. George M. Beard, the eminent writer and lecturer on nervous diseases, pays this compliment to American dentists:

"That premature decay of the teeth is a result of civilization is an undeniable fact, and in those whose constitutions are depleted of force, the teeth are rarely good. They are only kept in fair working order by the great skill of modern dentistry. *Dentists are the barometers* of civilization. Their rise and prosperity is one of the most instructive facts in modern sociology. American dentists are the best in the world, because American teeth are the poorest in the world."

There is no immediate prospect that the general health or the condition of the teeth will greatly improve; therefore, more knowledge and greater skill will be required to do the important work awaiting those who prepare themselves to do it *well*.

Much difference of opinion exists in regard to the amount

and kind of preparation needed. We often hear this question propounded: What is the use of a college or medical education for one who simply performs mechanical operations? While *others* say, and truly too, if we hope to take a place and be recognized among the professions we must enjoin upon our students the *full course*, including complete *medical* education.

There may be some good reasons for the views entertained by both, but regardless of all views or theories, the *fact* is evident that dentistry is no longer looked upon as *simply* a *mechanical* art, but is known to occupy a conspicuous position among scientific callings, and is now recognized as an important department of medical science. Students who fully realize *this* will naturally desire to possess *thorough* medical education, because it is the basis and ground-work of every specialty.

Many dentists have already taken the degrees in medicine, and are warmly welcomed and most courteously treated by members of the older profession. These are as *links* binding more securely the two branches of the great art of healing, whose interests are, even at the present time, closely interwoven.

None can doubt, I think, that the *best* preparation for the young men *now* entering our ranks would be, first, a complete common school and academic education; afterwards, a thorough knowledge of medicine, ending with the dental course of instruction. Diplomas should be issued by the colleges only to those who merit them.

Men holding certificates of graduation from reputable dental and medical colleges, who have no greater *attainments* than others who hold none, or even those who have bought *bogus* diplomas, cast reproach upon the institutions that have too kindly favored them. The objection may be urged that too much time will be needed to complete so full a course. I will answer this by pointing to the hundreds of poorly prepared men who *wait hopelessly*, year after year, for success which never comes, and ask you to compare these with that other type of men who have the most nearly *met* all of these requirements.

The *fact* is patent to all that one class are *forced* to resort to every subterfuge, to even reduce their prices to a level with those of the common day laborer in order to obtain business, while educated, competent dentists, *as a rule*, pursue a dignified, professional

course. Their services are usually appreciated and well remunerated.

After a careful survey of these and numerous other significant facts, are we not forced to the conclusion that in order to be *truly* successful, to fully meet the constantly increasing demand, to reach the *highest* achievements in the future, we must, as members and students in an advancing profession, educate our minds as well as our hands, to perform intelligent as well as skillful labor, for the time is surely approaching when only learned men can hope to reach real and permanent success in the learned professions.

DISCUSSION.

DR. SPALDING: When a man has a *mission* to which he habitually devotes whatever time and thought he can spare from the regular routine of professional labor, he is apt to feel very much interested, and to be ready with something to say, whenever the subject in which he is so specially interested is up for discussion. It has been, for many years, a principal object of my life to promote the preparation of young men for successful practice.

The successful practitioner of dentistry requires a wider range of qualifications than is needful for almost any other calling. He must have the natural ability to become a skillful physician, and must possess fine mechanical ability. He must have uprightness and integrity of character, and be a polished gentleman. Every profession takes rank according to the character and qualifications of its practitioners. A thorough, scientific preparation is the very ground-work of a successful education.

As a rule, the colleges have put men through a course occupying a certain length of time, and have then graduated them, though in very many cases but poorly prepared for practice. There has been much ground for complaint in this respect.

We are now trying to insist upon a proper preliminary education. The college with which I am connected has been obliged to refuse several applicants, advising them that they were not fitted to profit by a course of dental lectures. It is difficult to enforce these necessary rules; many colleges are so poor that the temptation is great to receive ignorant pupils, rather than lose the fees that they would pay. The University of Michigan has established an excellent standard of preliminary

education. That institution is supported by the State, and therefore not subjected to pecuniary difficulties as many of the other dental colleges are.

The colleges are doing the best they can, and the teachers in them are doing a vast amount of poorly paid, self-denying work for very little thanks except from some of those they have taught.

I believe the standard has been kept up by the colleges rather higher, and advanced rather faster, than the masses of the profession will sustain them in. It is the duty of every practitioner to hold up the hands of those who are engaged in this labor of love—for such it truly is, and any who may engage in teaching from more sordid motives are likely very soon to tire of it. The men who are doing this work are doing it out of love for their calling, and in hope to advance the status of the profession. What shall dental education be in the future? In the power of skillful manipulation, the American dentists are in advance of the rest of the world, and we have many ingenious men who are bringing out every sort of appliance to assist and promote the mechanical perfection of our operations; but we are behind the nations of the Old World in scientific education.

Just such institutions as this society are doing a great work for practitioners.

The literature of the profession is the next valuable means of improvement, and the most important of all are the dental schools.

The great need of the profession now is that by rule no man shall be called a dentist who does not hold a degree. I believe that every man's title is a property in which he ought to be protected by law, so that no man should be allowed to call himself by a title unless he has earned it by proper preparation, and this view should be urged as one of the reasons for the passage of suitable dental laws.

What proportion of dental graduates succeed? Many of them go off into other pursuits, because they were so imperfectly prepared for practice. This can be avoided, but only by the united action of all the members of the profession. As for myself, my life is devoted to this work, and there are many others who feel as I do. These are the ones who will carry the burden of toil and care, in carrying into effect whatever

changes or improvements the future may bring forth in the methods or standards of professional education.

DR. BLACK: Our profession is passing through a peculiar phase of its life. It is not the same, and the requirements of students are not the same that they were ten years ago. There has been an advance. The profession is almost divided as to this advance. The difference of feeling and habit is very different with different members of the profession. On this account a change is necessary in the dental schools. It is not so very long since it used to be said that "good *apprentices* make good citizens;" but apprenticeship has passed away, on account of changes in the phases of our civilization. A change like this is going on in the dental profession. What portion of the best dentists are now taking students? I think very few. They find it difficult or impracticable to instruct them in the office. The students are therefore compelled to go directly to the colleges, or to go into offices that they would not prefer.

This being the case, much more is required of the colleges than mere theoretical teaching. As our fingers require to be peculiarly educated, it is important that there should be excellent opportunity for thorough training in manipulation, and I think it will be required that the *professors* shall give their time to demonstrations instead of leaving all the manipulative training of students to the care of comparatively inexperienced demonstrators. It is impossible, also, that they should give the *best* manipulative training by taking the students occasionally to their offices, but the professors should go regularly to the infirmary.

A student should at least have learned how to study, before he goes to a dental college. The power of mental application and consecutive thought, and such a range of information and knowledge of language as will enable him to understand the subjects that will be presented to him, is the very least preliminary education that should ever be admissible.

Is dentistry a specialty of medicine? If it is not, pray what is it? If it *is*, it should be on a par with other specialties in medicine. I do not mean that we should spend our time demanding *recognition* from the medical profession. We shall get it soon enough, but if we want it we must make the requisite preparation. The specialist in medicine the world over has a greater work of preparation than the general practitioner. He

must understand general medicine as well as the general practitioner, and thoroughly understand his specialty in addition. That is to say, the specialist must be the superior man, and it will be required of dentistry to take that position. The demand is forcing itself upon us, and the schools must meet that issue.

Dr. BROPHY: I heartily agree with the paper and with what Dr. Black has just said. It is impossible with poor material to get excellent results. If the colleges do not have good men for students they cannot turn out graduates who will make first-class practitioners. The question has been much discussed whether dentistry is a specialty of medicine. If it is so, it is not a profession by itself. The American Dental Association has resolved that "Dental surgery is a specialty in medical science." I regret to say, however, that this distinguished body does not demand that their students shall receive a full medical education, an attainment absolutely essential before they can justly enter upon the practice of medicine or any of its specialties.

What is medicine and what is dentistry? Medicine relates to all diseases, and the means of relieving them; dentistry relates to diseases of the mouth and jaws, and especially the teeth, and the means for relieving them. I think it is impossible to go away from this meeting without seeing and realizing that we are dealing with medical subjects. Dentistry is a specialty of medicine. It is only within the last century that surgery was incorporated as a part of medical practice. It is not very long since eye and ear treatment was in the hands of quacks, and the same is true of gynecology. Do any of these have separate schools?

Dentistry is the most important of the medical specialties, because almost every person, at some time or other, needs our services; because of the range and the importance of the subjects included in it, and the necessity and urgency of the demand for the services we are able to render.

Why should we seek to maintain an independent profession, when our natural, appropriate, and most useful place is in association with the medical profession? If it is asked, What should the mechanical dentist do? I answer, He should take all the lectures of the dental school, the same as any other dentist, but in clinical training he should spend his time chiefly upon the special work that he intends to do.

There is no trouble about recognition, but there is one certain door by which the medical profession must be entered. He who attends the lectures and obtains the diploma of a medical college will be recognized as a medical man.

As to preliminary education, I believe that any one who has pluck, a good common school education, and some knowledge of Latin, will be able to enter a dental or medical school, and give a good account of himself. No man when he graduates from a medical college ought to regard his professional education as completed. On the contrary, we ought all of us to be students as long as we live.

I do not agree exactly with Dr. Black in regard to dispensing altogether with an office pupilage. I think that is very desirable. There are many things that bear an important relation to success beside strictly professional training, and these can be far better learned in an office than in college or infirmary.

There are many who have become eminent medical men in dentistry by their own efforts, without the help of the medical schools. All honor to such!

It is not alone the dentists who are to be benefited by teaching dentistry in the medical schools as a specialty of medicine. The medical men, who see more patients than we can, and see them oftener, will be enabled to do much more than they now do to secure the perfection and preservation of the teeth.

DR. TAFT: The remarks that have been made look toward the future. One way to estimate the future is by the current of present events. Another method by which to judge of the future of the profession is by the demands made upon it by the public. Are we able to meet these demands? Are any of us ready to meet all emergencies, or able in all cases to perform the services that our patients desire of us? I apprehend that none will make that claim. Shall we endeavor to meet the demand?

The public understands better than formerly what the profession is able to do. A great many people in every community know that much can be done for the preservation of the teeth, and so they are disposed to ask us to do still more. That people thus understand and urge us forward is a good indication, and the profession will endeavor to make the attainments necessary to meet this demand.

The scope of the training demanded of the student is con-

tinually enlarging. * The same is true of the range of subjects considered in our societies. We discuss general hygiene for the sake of the teeth; and so, with medicinal agents; dentists are searching everywhere for suitable remedies.

I must take exception to the statement, quoted in the paper, that American teeth are the worst in the world, and worse now than formerly. I do not believe it. The average longevity is increasing; from having formerly been estimated at thirty years, it is now approaching forty.

This is due greatly to better medical treatment, to better food, clothing, and hygienic conditions; and partly to better dentists. Disease producing agents are better understood and avoided.

I believe that teeth improve, that longevity increases, and that there is an upward tendency, and growth and progress, and this should stimulate us to greater efforts for the advancement of our own profession.

DR. SPALDING: The position was taken by Dr. Black that dentists are divided in opinion as to the position which the dental profession ought to take, and the methods by which dental education should be conducted in the future. I do not think the division is so serious, or the difference of opinion between the two parties so great, as might be inferred from his remarks.

I believe the difference is mostly one of policy and method as to what *can* be done, and the best way to undertake it. There is no one who would not say that there should be a previous medical education *if it can be done*. The question is whether we shall go on in the course which experience has found to be so useful, or try a radically different plan. I believe that we should maintain the dental schools as they are, adding more and more medical instruction till they include a full medical education in their curriculum.

The field of medicine is very wide. It is not possible for any one to go over the entire field with the thoroughness with which the specialist studies his own department. The general practitioner must learn well the things he must use in every day practice. The specialist should obtain the general knowledge that will help his specialty, and give most of his time to a thorough mastery of every detail of his own specialty. I believe

that the dental schools are better fitted to take up and carry on this work than are the medical schools. The teachers in them know what is wanted, and will use all the support that you give them to promote the desired end.

BE CONSISTENT.

BY J. W. CORNELIUS, D. D. S., MADISON, WIS.

"HE lives most

Who thinks most, feels the noblest, and acts the best."

THE more we ponder over these lines the more vividly are these truths impressed upon us. It is a sorry fact that we often act as though the milk of human kindness were all pressed out of our hearts. We should never forget that we are fallible, and should therefore have the broadest sympathy for our co-laborers in the profession. In the journey of life we find that of all the schools, the most prolific is that of difficulty. Difficulties we have daily to contend with; but this should not discourage us. That eminent statesman, Burke, has aptly said, "Difficulty is a severe instructor, set over us by the supreme ordinance of a Parental being, who knows us better than we know ourselves." He that wrestles with us strengthens our muscles and nerves, and sharpens our skill. This amicable contest with difficulty forces us to intimate acquaintance with our subject, and compels us to consider it in all its relations. A celebrated artist, when asked by what wonderful process he mixed his colors, replied: "I mix them with brains." This must be said of every skillful worker. To be a successful operator, the mind must be employed as well as the hands.

Consistency is said to be the prime minister of mind, giving healthful vigor to reason, prudent discretion, and common sense. It therefore behooves us to be consistent. If a brother practitioner is incompetent, it will not take long for the general public to discover the fact. We have known some skillful operators who have made serious mistakes in their treatment of the oral cavity; but this should not condemn them, for who among us is not liable to err in judgment? For ofttimes

"'Tis with our judgment as our watches,
No two go just alike, yet each believes his own."

It is amazing to read the various opinions of dentists, as found in our dental literature, upon the various modes of practice. One proclaims that plastic fillings are better than gold in many cases. (And, mind you, some of these advocates are fathers in the profession.) Then, again, others claim that nothing but gold should be used. It is a fact that there are dentists who make durable fillings with both metals. We find those who do not recognize galvanic action, but chemical action, in caries. Are these men to be denounced for opinion sake?

The dentist, when requested (mind, requested,), can give an honest opinion of an operation, without going into a tirade of words that only disgusts a thinking man and degrades the profession. "Be consistent," was long a motto of the old Romans. When this became obsolete in practice, they ceased to be.

Let consistency in practice be our aim, and our lives will be all the better. Life is too short to be filled with professional animosity.

A CASE IN PRACTICE.

BY DR. J. B. TULLIS, MARSHALL, TEXAS.

IN December last Mr. J. York, of Carthage, in this State, applied to me to make him a plate, if I thought it could be done so that he could eat and talk. I examined his mouth, and found there were some difficulties connected with the case. He informed me that, for three years, mercury in broken doses had been given him, and he was salivated, and had lost eight teeth, embracing the first bicuspid and all the front teeth; and the maxillary bone, within this space, had been removed. On the median line, in the center of the arch, was an opening about the size of a bullet, connecting with the nasal cavities. Also, on the left side, embracing the frænum, was another opening, of a longitudinal shape, leading into the nasal cavities. The gum underneath the opening was soft, as the bone had been removed. The muscles were much contracted, and the lip was drawn in very much. Now, to stop the openings with a plate that would stay in the mouth, was the next subject to undertake. I took an impression cup, and filled the front with wax, so as to force the plaster into place. I then took a piece of fine bobbinet and spread over the plaster, bring-

ing it under the front and back of the cup, so that in pressing the plaster, it would not let it intrude into the openings, thus leaving the impression smooth. I succeeded in obtaining a good impression, and proceeded in the usual way to make the plate, as follows: I built up the front with wax, leaving it in the natural shape of the mouth, using plain teeth. I cut a piece of lead round, to make an air chamber, cutting a round hole in the middle, covering the opening in the arch, leaving a small space, so as to prevent the air from getting under the plate. In the front, I extended the plate as high as possible, to cover fully the opening at this point. I then proceeded to make a rubber plate. After trimming to fit all round closely, I was much gratified to hear him talk and see him eat. It so changed his appearance and speech that all who knew him observed it, and would exclaim: "What is the matter, York?" "Nothing," was his reply. "We know better;" looking him in the face, "Who did that? You don't look and talk like the same man!" After two days' trial he said it was all right. I have given this plain account of the case, as it may aid some young member of the profession in a similar one. I sent a plaster model of the mouth to Dr. H. A. Smith, Dean of the Ohio Dental College, but do not know that he received it, as he has not acknowledged its reception.

WHAT IS YOUR NAME? OR, KNOWN BY YOUR WORKS.

BY DR. J. E. LOW, CHICAGO, ILLS.

I BELIEVE there are in the United States between twelve and fifteen thousand so-called dentists. The question has often presented itself to me as to what portion of this number should be really entitled to the name dentist. To arrive at any just conclusion we must first know what is expected of a dentist. Is he to simply extract what teeth come into the office, and replace them? I think not; but believe the more intelligent class of people expect more. It is generally understood, I believe, that a dentist should understand the anatomy of the face, so as to be able to treat whatever disease might arise from badly decayed teeth; and, more especially, he should have sufficient skill to be able to preserve the natural teeth, where it is possible to do so.

I believe a man not having these qualifications has no rank or claim in the proper acceptation of the name, in a profession where so much is possible and so little is accomplished. He may have the titles M. D., D. D. S., but these do not signify. A physician must be capable of curing disease to be properly and justly called a physician. It does not require the title of M. D. to administer medicine, without being capable of properly diagnosing; and such a one, instead of reducing the dangerous conditions, increases them. A surgeon may have the required skill to amputate a limb, and may advise its amputation, simply for want of proper knowledge to restore it to its normal condition. The same rule holds good in the practice of dentistry. Any pretending dentist can pull out or break off a tooth that aches; but to reduce the inflammation and preserve the tooth, are the all-important objects in view. I believe not far in the future the extracting of teeth, unless loose enough to be removed without forceps, will be considered quackery, simply because the operator must be deficient in the required skill to properly treat and preserve them.

The man that invented the relief of pain by extracting the tooth conferred a great favor upon humanity, because it was the best way then known; but he who can relieve pain without extracting, is greater beyond comparison. It has been estimated that over twenty millions of teeth are extracted in the United States yearly; and that three millions of sets of artificial teeth are inserted annually. What an unnecessary sacrifice! and what a contrast with the substitute! for, in most cases, a cheap rubber plate is used. We have but little conception of the amount of injury, suffering, and loss of life that might be traced to this inhumane practice of extracting teeth by the wholesale. Who is responsible for this so common unskilled work coming into such general use? Are these men that are now disgracing the profession responsible? I think not; but those capable of doing better work, who have become somewhat proficient in operative dentistry, are. Of late, as soon as a man becomes conscious of his ability to fill teeth reasonably well, though he does not acquire the sufficient amount to keep the wolf from his door, he could not think of so disgracing himself as to have anything to do with mechanical dentistry; so he sends them to some one who is less proficient to do this cheap work, and gives no thought as to how he could restore those teeth, without the least incon-

venience to the wearer, though it might require twice the mechanical ability to do this artistically than it did to do the filling, and the patient would willingly pay the required amount to accomplish such a result, when impressed with the necessity of doing so. I am speaking from experience.

I have, in the past five years, been trying to give my customers the best possible condition next to the natural teeth, restoring partial loss of teeth permanently without plates. This necessitates considerable more expense than other work, on account of extra labor and skill required to produce the desired results. I have never found during that period any lack of patronage on account of the extra charges; but, on the contrary, business has been so pressing that I have had to keep not less than two assistants, and sometimes three. This has demonstrated to my mind, conclusively, that the better class of dentists are responsible for this degraded and disgraceful condition of mechanical dentistry. They become too professional for the interests of their patronage. They will neither perform this skilled mechanical labor, nor send their patients to those that do, as a rule; but have them fitted out with a cheap rubber plate, and charge them for skilled labor. What has been the result? The public have, long since, found out that this class of work can be made by men with a very small amount of mechanical ingenuity, so that they answer the purpose. They believe in going where they do this class of work, and charge only for doing it. This is the cause of the increase and prosperity of cheap dentistry. We must give value received. Every reasonable person feels satisfied when a piece of artistic work has been done — there is satisfaction both to the artist and the wearer. Money does not seem to play any part. Your bill is paid with satisfaction — no questions asked. Many in the dental profession have become disgusted with this condition, and have advocated a division of operative and mechanical dentistry. There can be no division, except it be between the different standards of labor; but no division, practically speaking, can be made between operative and mechanical dentistry; for every operation performed in the mouth to preserve the teeth is mechanical, and, as we advance in the art of preserving teeth, more and more mechanical ability becomes necessary. The blow-pipe is soon coming into use for this purpose. I have been making some very interesting experiments, in

the past few years, in preserving frail teeth, when a large share of the labor has been performed with the blow-pipe, the appliance being made out of the mouth, and afterward put on. I have succeeded in saving teeth that could not otherwise have been preserved; and, then, there comes in the crowning of roots, which every first-class dentist will be expected to perform, which will necessitate the use of the blow-pipe in most cases; even a Bonwill crown cannot be properly set without its use; therefore, I can see no division except between skilled and unskilled labor. Take away the mechanical genius of a dentist, and you must change his name and business.

In conclusion, we know there are many dentists in this country who are known by their works, and cannot be excelled; but how is it with the majority of these fifteen thousand? Are they capable of doing what is rightfully expected of them? Let each one of us ask ourselves the question, and if we find ourselves deficient in any branch of what goes to make up the combined whole of what a dentist should be, let us apply ourselves diligently until our name, title, and degree will be visible in our work. The knowledge is what we want and must have; if obtainable through our own exertion, so much the more credit is due. After gaining a thorough knowledge of the various branches, if we find ourselves more proficient in any one than in the others, then it is our duty to operate where we reach the best results for those in need of our services.

Editor's Specials.

"Write the Vision and make it plain."

DR. M. S. DEAN.

An elegy is apt to be a eulogy; and no other class of writing is so apt to need friendly supervision as obituary notices. But in the case of the friend named above it would be difficult to flatter; and anything fulsome would be much out of place, and could be written only by one lacking common sense, or one totally unacquainted with our departed friend. We are glad to insert the

following from the St. Louis Dental Club, as expressive of our own sentiments :—

At a meeting of the St. Louis Dental Club, held on Monday evening, January 30, 1882, Dr. Spalding announced the death of Dr. M. S. Dean, of Chicago. A committee was appointed to report suitable resolutions on the occasion. The committee subsequently reported the following, which were unanimously adopted :—

WHEREAS, Intelligence having been received of the sudden death of Dr. M. S. Dean, of Chicago, therefore,

Resolved, 1st.—That in the death of Dr. M. S. Dean, the profession of dentistry has lost one of its brightest ornaments, and one of its most useful members.

2d. That few practitioners of dentistry have devoted their time and talents to the study and investigation of the more obtruse and occult branches of dental science, to the extent that Dr. Dean has done. The results of his labors in this direction have served in an eminent degree to familiarize dentists with the subjects of his particular line of study, and thus to largely promote a more general knowledge of this branch of dental science.

3d. That in appreciation of his merits as an investigator, and of his character and standing as a professional gentleman, he has been made the recipient of the very highest honor within the gift of the dental profession in this country, viz.: the Presidency of the American Dental Association. He also filled the responsible position of Recording Secretary of the same body for several years, and discharged its laborious duties in a manner creditable to himself and highly satisfactory to the members of the association.

4th. That we sympathize with the dentists of our neighboring city in the great loss they have sustained by his death, and with the relatives and friends of the deceased in their sudden bereavement.

5th. That a copy of these resolutions be sent to the Chicago Dental Society, and to the dental journals for publication.

C. W. SPALDING, *Chairman*,
A. J. PROSSER,
WM. N. CONRAD,
COMMITTEE.

THE UNCERTAINTY OF REPORTING.

In reporting the testimony in the Tapper chloroform case, our old time friend, Dr. Robert L. Rea, is made to say: "All anæsthetics are dangerous, even nitrous oxide; no physical examination will denote whether it is safe or not for any patient." And a little further along he is represented as saying: "A physician should always be called on to decide whether it was safe to administer chloroform or not; this could be decided in a minute or two." We know Dr. Rea, and we don't believe he said that, by a physical examination, a physician could determine, in a

minute or two, that which can not be determined at all by a physical examination. Somebody slipped.

PROF. SPALDING ON RAPID DECAY.

THE paper which Dr. Spalding read at the last annual meeting of the Illinois State Dental Society is laid before our readers in our last number. We ask for it an attentive reading—a careful study.

Prof. S. is surprised, and we are, too. He, at the chemical state of the buccal fluids in rapid decay—we, surprised that he is surprised. Disguise it as we will, affect modesty as we may, we all—yes, each one, when he gives utterance to a doctrine he claims to have elaborated, or a favorite opinion which he labors to inculcate, feels, to a greater or less degree, the sentiment, “I am Sir Oracle! and when I speak let”—others listen. Accordingly, we have been flattering ourselves that whenever we said anything about the chemistry of dental caries, Dr. S. listened with both ears and mouth open; when we wrote anything that he put on his spectacles and mastered every thought before he slept. But now we are sadly humiliated; for if we have failed to interest Dr. S., we take for granted our thoughts have been wafted away by the winds of indifference, and that our struggles in this direction are “love’s labor lost.” We sincerely hope Dr. S. will carefully read our article on “Ammonia,” in the February number of the OHIO STATE JOURNAL, which, we trust, gives some light in the direction of the darkness encountered by him.

Let it be borne in mind that the individual acid, the immediate re-agent, in any variety of dental caries, can be known only by its works. The wild Arab knew a camel had passed his tent, in the night, by its track. And he knew the fact as well as if he had seen the camel himself. But the camel’s track in the sand is less definite than is the track of each re-agent that produces a variety of dental caries. The Arab’s eye detects the one, the chemist’s eye the other.

Of all the varieties of dental caries, by far the most rapid in its results is the light-colored, commonly called “white decay.” This often precedes and opens the way for the other varieties to

do their mischief ; hence it is not uncommon to find one more, or even two additional kinds of decay coöperating with it. But the immediate re-agent in white decay is nitric acid. And like the other acids which cause dental caries, it acts only in its nascent state in producing this morbid condition. Hence, don't expect to find nitric acid, but *nitrates*, and the quest will be rewarded. But this acid, as an exciting cause of decay, is always formed by the oxidation of ammonia. Ammonia is almost always found in the buccal fluids when they give an alkaline reaction ; and, for a quarter of a century we have tried to teach that an alkaline condition of these fluids is fearfully dangerous to the teeth. Whether in reference to rapid decay, the degeneration of the periosteum of the sockets, or the deposition of tartar. We have often, and almost uniformly, required young girls to make monthly, or at least quarterly, visits to our office, that we might ascertain the chemical conditions of the fluids of the mouth. And we have all along regarded a highly alkaline reaction as a just cause for alarm, and as a state requiring immediate treatment.

The presence of alkalies, other than ammonia, in the mouth favors oxidation, and the consequent formation of acids ; but to discuss this would overtax our space. And now, if we have aided Prof. S. any at all in the solution of his mystery, let it stand as a small credit on account for the many useful thoughts he has given us. No call to give up the acid theory of dental decay.

WONDERFUL VITALITY.

A SHORT time ago Hon. Alex. H. Stevens, on the seventieth anniversary of his birthday, gave a dinner and held a reception at his rooms in Washington. There was a large attendance of his friends, and it is said he was in excellent health and spirits. We saw him in 1856, and suppose he was in excellent health then ; for he had the complexion of a smoked corpse which had been previously dried ; his hair stood on end and looked like scorched flax ; he weighed ninety pounds, and appeared to be trying to draw his last breath, but lacked strength to do it. It would have been refreshing to see him die, as a means of escaping his apparent agony. We watched and waited, but he wouldn't die. He couldn't get all of the last breath in, though he braced himself on the arms of his chair and heaved, apparently with all his

might. He has been struggling to get that breath ever since ; but here he is after more than a quarter of a century of intense effort. Does it not seem that some men can't die ?

But let us learn a lesson from this. Mr. S. is almost a perfect specimen of what is called by physiologists the nervous temperament. In the earlier years of our studies we were taught to look for strength and endurance in the bilious temperament ; but long ago we learned to look for these in the nervous temperament. Toward the close of our late civil war, the majority of the nervous temperament was often found in the veteran regiments—more of this than of any other, and sometimes more than of all the other temperaments were found.

But what has this to do with dentistry ? “Much every way ;” mainly though in this, that morbid tissue may be restored, and lost tissue replaced, with patients of the nervous temperament, when it would be folly to expect such results with other temperaments, especially with the bilious or lymphatic. We advise our readers to go through the world with their eyes open, relying on facts as they find them, rather than on text-books, which often copy the mistakes of each other. It is saddening to think how little original thought is gained from original observations.

DOCTOR D. C. HAWXHURST IS DEAD.

WE can all feel, but we can not appreciate, and far less describe the shock to our profession. When ripe fruit is gathered, all acquiesce. When a professional brother who has toiled long and hard in the battle of life is called to rest we feel there is a fitness of fate to the surrounding circumstances. But when one who is yet young has reached the higher walks of professional lore only to fall while struggling upward after still higher attainments,—we naturally shrink from the contemplation of such a scene. Dr. H.'s home was at Battle Creek, Michigan ; and we copy the following from the *Battle Creek Journal* of March 4th :

Our community was startled last evening by the sorrowful intelligence that Dr. D. C. Hawxhurst, of this city, had terminated his earthly career in Paris, France, where he was spending the year with Mrs. H. in the prosecution of scientific and professional study.

Dr. Hawxhurst was taken ill with the small-pox on the fifth of February,

at his rooms in Paris, and was soon removed to one of the best hospitals of that city and received the skillful and diligent attention bestowed upon patients in institutions especially devoted to the treatment of that disease, but notwithstanding the care thus given, his system succumbed to the malady, and he died on the 16th of last month, after an illness of eleven days.

Mrs. Hawxhurst, whose bridal tour is thus so unexpectedly darkened by a great sorrow, is now with Dr. Hawxhurst's brother, Prof. Wilson, and wife, at Tubingen, Germany. Prof. W., who was at that place when his brother was taken ill, went to Paris and remained there until his death. They will all probably return early in the season.

Dr. Hawxhurst has been a resident of our city for many years, and his death will be a subject of universal regret. He was a man of superior intellectual and social gifts, a devoted and discriminating student, and was possessed of rare scientific attainments, which he steadily devoted to practical use. His high professional and literary standing was already recognized throughout our State, and he was steadily and constantly adding to his store of information on a wide range of subjects. The editor of the *JOURNAL* received from him a number of French journals dated in the last days of January, giving a full account of the fall of the Gambetta Ministry, and also two very important French pamphlets on the silver question, showing that with his particular professional studies, he also gave time to the investigation of other current topics. His death is a great loss to the community.

The position held by the deceased in society and the character of his achievements are such that a more extended notice of him is required and will be given hereafter in our columns.

His relatives here, and especially Mrs. H., so sadly bereaved in her foreign sojourn, have the earnest sympathy of our entire community in their affliction.

IMPERTINENT QUESTIONS.

DURING the good old times when we were a juvenile pedagogue, at the cross-roads (not "Confederit"), a violent hail storm raged during a noon recess, and kept us all within doors. Some young lady pupils undertook to shorten the time by quizzing a half-clad youngster about his sister's beau. The boy was gnawing a raw turnip, and was quite unembarrassed by their teasing. After patiently listening for some minutes to their questions, he remarked, with apparent content: "Them's all out of the larger; I ain't quite through the shorter catechism yet." We have always admired that boy's treatment of impertinence.

We presume not all the readers of *THE JOURNAL* know how much the dental profession is indebted to Dr. Thomas B. Gunning, of New York, for saving us all from the most prying impertinence ever devised from good motives, or suggested by sensible men. We allude to the blank prepared by the census

bureau for ascertaining the *private* details of each dentist's practice. The entire correspondence between the New York Chief Special Agent of the Census Office and Dr. G. is too bulky for our present space, and so we must be content with specimen extracts. An assistant from the Census Office in New York presented Dr. G. a blank which he agreed to retain for examination, and the result was a letter from the Chief Special Agent, which, with Dr. G.'s reply, is presented below :—

DEPARTMENT OF THE INTERIOR—CENSUS OFFICE. }
Office of Chief Special Agent,
 21 Cortland street, New York, December 14, 1880. }

DR. THOMAS B. GUNNING, *Dentist*, 34 East 21st street, City :—

SIR :—You are reported as declining to give the information necessary to fill the blank handed you by my assistant, the form not being as you deem the best. I have to say that this form has been prepared by the Census Department, and we are required to obtain the information necessary to fill it from you, which the law compels you to give. I trust, therefore, you will give us no further trouble in the matter, but fill the enclosed blank and return it to this office. I am, yours respectfully, etc.,

CHARLES E. HILL,
Chief Special Agent for the City of New York.

NEW YORK, December 15, 1880.

CHARLES E. HILL, ESQ., *Chief Special Agent for the City of New York* :—

SIR :—Your letter to me of the 14th tells that your assistant handed me a blank of which the form has been prepared by the Census Department. I am thus corrected in my mistake, into which I was led by the peculiarity of the blank above mentioned and by the subsequent conduct of your assistant, in supposing that he was an agent of a company claiming some patent.

When he first called I thought that he was from the Census Office, and I acceded to his request to look into the blank. Finding nothing in the paper as printed which referred to my profession—Dental Surgery—I studied the penned interlineations in red ink. My conclusions were that properly I could not say anything, and I waited for his return. When he came I suggested that perhaps I could make a statement on a schedule such as is left with surgeons and physicians; he replied, in substance, that they did not have to make any return; that there was no

other schedule, and he gave me to understand that surgical operations, etc., I might except. After further remarks and some apparent annoyance at my endeavors to gain more information, he suddenly left.

This, in consideration of the fact that I had reported to the Census Agent some months before, and that although over forty years in practice, I had never heard of any special return being asked for from Dentists—led me to conclude that the blank schedule was presented to me for an illegal purpose.

In answer to the remainder of your letter, I would say first, that I am very desirous to comply with every legal demand, and also save you and all connected with the Census Office from trouble so far as I know how. In your letter you say that you are required to get from me the information necessary to fill up the blank; while you also trust that I will fill it up. But you do not tell me what information you require; and in my judgment I have nothing to report upon the schedule which you have mailed to me, and I am willing to endorse this statement upon it, if you think it will facilitate matters. Awaiting your instructions, I am, sir, your obedient servant,

T. B. GUNNING.

The Chief Special Agent acknowledged the receipt of Dr. G.'s letter, and replied, asking him to call and grant a personal interview, as he said, "in order that my official intercourse with the members of your profession may be in strict conformity with such suggestions as the more prominent and intelligent may offer towards the accomplishment of the end sought."

Dr. G. replied that he would be unable to call in time to make suggestions available, and he would therefore place his views on paper. So in an elaborate letter, which would make five or six pages of THE JOURNAL, he argues the whole question, clearly and concisely, which brought, in answer, the following letters, which fully explain themselves:—

DEPARTMENT OF THE INTERIOR—CENSUS OFFICE. }
Office of the Chief Special Agent,
 21 Cortland street, New York, December 28, 1880. }

DR. T. B. GUNNING, 34 East 21st street, City:—

MY DEAR SIR:—I have to thank you for your very courteous and interesting communication under date of the 24th, this morning at hand.

Its reception was most opportune, inasmuch as I was at the moment closing an official letter to the Superintendent of the Census, discussing the same subject to which your letter relates, and which it so ably treats. I have therefore transmitted it to him with my own, and await his definite reply, when I trust any difference of views which may exist between any of the members of your profession and the Census Office will vanish.

Very truly yours, etc., CHARLES E. HILL,
Chief Special Agent.

DEPARTMENT OF THE INTERIOR—CENSUS OFFICE. }
Office of the Chief Special Agent,
 21 Cortland street, New York, January 4, 1881. }

DR. T. B. GUNNING, D. D. S., 34 East 21st street, New York :—

DEAR SIR:—Referring to my letter of the 28th ultimo, I have now to say that the Superintendent of the Census, upon the representation made to him by this office of the general reluctance of the profession to give the information contemplated by the schedule, and upon consideration of the paper by yourself submitted to him, advises me (under date of yesterday) that he has determined to omit from the tabulations of this office "Dentistry in all its branches." All the schedules now in this office will be endorsed to this effect, and respectfully returned to their respective makers. I am, sir, very truly yours,

CHARLES E. HILL, *Chief Special Agent.*

Thus we were rescued from impertinent annoyance surpassed only by Josiah Bacon and his imps. Thanks! Dr. G., says THE JOURNAL. Thanks!! reëcho its readers.

We get the above information from a pamphlet reprinted from the *American Journal of Dental Science*.

SIXTEENTH ANNUAL MEETING OF THE OHIO STATE DENTAL SOCIETY.

SYNOPSIS OF DISCUSSIONS—REPORTED BY THE EDITOR.

SECOND DAY, 2:30 P. M. DRS. C. R. BUTLER and J. TAFT, delegates to the International Medical Congress, were called on to report in reference to their attendance.

Before hearing them the President stated that he had taken the responsibility of appointing, as delegates, members that he knew expected to attend, and had issued credentials to them accordingly. He had also appointed Dr. George Watt a committee to draft a letter of greeting from this Society to the said Congress. He asked the Secretary to read the letter, which he did, but as it is merely a formal expression of friendship and good will, it is not here inserted.

DR. BUTLER spoke first, but we were prevented from getting the substance of his remarks, and omit rather than caricature.

DR. TAFT alluded to the very prompt publication of the papers read. They were not confined to a special volume of transactions, as is usual with us.

The profession in Europe, he said, has some highly educated men—not very many, however. He thought America would compare favorably in this respect. At least he was not willing to make any concessions in this direction. The profession there is recognized by the medical as much as here—not more. A section on dentistry in the American Medical Association preceded the dental section in the International; and probably ours gave rise to their movement. Dental law is no better there than here, unless that it is uniform throughout the kingdom. Their law is good, but had been badly executed at first—many registered that ought to have been excluded; and, consequently, they were trying to get rid of some three or four thousand. All in practice had been allowed to register, and barbers, surgeons, etc., rushed in. Their education is not better than ours, except, possibly, the preliminary; and the average practitioner is not equal to the average American dentist. Their colleges are in pretty good fix, but are not superior. In one hospital he saw three or four hundred teeth extracted in an hour or two, but saw no other operations there. Many of the teachers in Europe are Americans. Dr. Hollander, of Halle, seemed to be much interested in American dentistry—had translated “*OPERATIVE DENTISTRY.*” A college in Paris does not rank as high in science as some others; but its teachers are practical men. The English dentists received us with great cordiality, and seemed to give special attention to their American brethren.

Some five hundred papers were read, the discussions being usually longer than the papers. The general congress met every

morning, at which they had addresses by Huxley, Paget, and others. Many American papers were read. Dr. Billings read one on Medical Literature, and President Paget said, if nothing else had resulted from the meeting, he would have been well paid. Dr. Sanders, President of Section XII, made an eloquent opening speech of fifteen minutes. Dr. Walker read a paper on "Wasting of the Alveoli," showing no better knowledge of the subject than we have here. Dr. Marshall Webb read a paper on "Contour," and Magitot one on "Syphilitic Teeth," the latter giving the ordinary accepted views. Drs. Underwood and Miles discussed the subject of parasites in the mouth, as to their being a cause or a consequence of disease. There is quite a division of sentiment over there, the parties being apparently nearly equal in number. Dr. M. S. Dean read a paper on "Alveolar Abscess;" Dr. Kingsley one on the "Influence of Civilization in Reference to Irregularity of the Teeth;" Dr. Atkinson on "Reformation of Bone;" and Dr. Taft on the "Antrum."

To tell of the entertainments, sources of enjoyment, sight seeing, etc., would prove too tedious; but the dentists went everywhere and found every thing open for their inspection. Some fifty to sixty American dentists were present—more from America than from any other country, and about as many as were present even from England.

The President announced that the subject of the First Molars was again in order.

DR. G. W. KEELY said he loved these teeth as well as anybody present, but he would sacrifice them under the circumstances already indicated.

DR. J. TAFT feared he had been misunderstood. He would try to save them under all circumstances. When the jaw is so short that there is not room for the third molars, and the first were defective, he would extract them. In answer to questions he said whether he would extract the second bicuspid's, in place of the first molars, when space was necessary, would depend on the condition of the teeth.

DR. W. P. HORTON was glad to hear Dr. Taft's explanation. Dr. Butler had referred to disagreement on the subject between New York and Boston. The same dispute extends to the west. One new departure man, he said, who claims thirty-eight years' practice, also claims to extract the first permanent molars indis-

criminally; and this man has figured somewhat largely in dental literature.

DR. BERRY said it will not do to follow all old practitioners, especially enthusiasts. They go too fast. We should make haste slowly—take time, and save all that are worth saving.

At the evening session, second day, C. C. White, M. D., of Columbus, read a paper on "EPILEPSY AS RELATED TO DISEASES OF THE TEETH." We can not give an intelligent synopsis of the paper, but advise our readers to give it careful attention when it appears in the Transactions. He claimed that the brain is reached by reflex action, through branches of the fifth pair of nerves, and called attention to the fact that the inferior maxillary are the largest branches of this pair.

DR. J. TAFT thought it not strange that epilepsy is induced by dental irritation; and to illustrate, he referred to some cases of epilepsy in infants, occurring in the practice of Prof. MacLean, of the University of Michigan, which were totally relieved by circumcision.

DR. MORRIS reported a case of convulsions, followed by defective eyesight, relieved by the removal of a wad of cotton which had been placed in a socket after extraction.

DR. BERRY suggested that, in view of the cases reported by Dr. Taft, it might be inferred that circumcision was originally intended as a sanitary measure as well as a religious rite.

DR. WATT had known epilepsy as a sequence of difficult eruption of the third lower molars, and suggested that it was more likely to result when there is not very acute pain. He said it was *continued* rather than severe irritation that induces epilepsy.

DR. L. BUFFETT said epilepsy would not result from acute inflammation, either at the third molars, or on the prepuce, as referred to by Dr. Taft. If the morbid condition reaches the state of acute inflammation, the tendency to epilepsy is arrested. If we understand nerve irritation, we understand spirit influence, whatever that is. When the predisposition is established, very slight irritation of the trigeminus will cause an epileptic seizure.

THIRD SUBJECT — "METHODS OF MOUNTING ARTIFICIAL CROWNS ON THE ROOTS OF TEETH."

DR. JENNINGS was opposed to the Bonwill amalgam method. When practicable, he would put the rubber dam on the root. He

would bevel the edges so as to have thin edges both to the artificial crown and the root. For a pivot he takes a piece of steel knitting needle, files it to a triangular shape, and makes notches in the angles. He uses Pierce's or Caulk's phosphate—they do not set too quick—he forced into the root, then press the crown with the pivot firmly to its place, and hold two or three minutes. When the root has two or three canals, he used that many pivots. The trouble with these crowns, he said, is that the patient will try how much they will bear, instead of how carefully he can use them. He said he was having crowns made that he liked better than those in the market. He thought the thin border was very important in enabling us to make an accurate fit. He would have the pivot well into the artificial crown—would as soon have his steel pivots through the molars as not.

DR. BELL said he would not trim off any part of the natural crown till the root was healthy in its socket. He would prepare and fill the root with Caulk's cement. He would keep dry, cut the surface of the root concave, and make two holes in it, so that it would take the ends of a wire bent like an inverted V. Would bend the wire to this shape, make the surface of the root flat, and rather pointing in. Would hold his pivot in a broach holder; put in and fasten with Caulk's or Agate cement, holding the pin with the broach-holder till the cement is in. After the pin is solid in the root, then fill cement into the crown and press in, having first cut the wire pivot at the bent angle, and when the crown is in place, he parts the ends of the wire, and inserts cement between them.

DR. JENNINGS wished to say that of course he would not place the artificial crown on till the root is healthy.

DR. P. G. C. HUNT said there was danger of splitting bicuspid roots in masticating. He preferred cement to amalgams on general principles. For pivots he preferred platino-iridium.

The President asked if gold and platinum made an objectionable pivot.

Dr. H. thought not.

DR. H. A. SMITH said if the cement is allowed to harden in the root before the crown is put on we do not have a continuous union of the cement. He thought life too short to wait on amalgams in this operation. He preferred the old-fashioned plate teeth, with gold back and pivot, rather than the crowns in

the market specially made for this purpose. He thought they saved time, and made better operations.

DR. BELL said the root should be cut so low that the free margin of the gum, when restored by healing, would cover it, which it would usually do within ten days.

DRS. SMITH and JENNINGS both objected to the two pins, as suggested by Dr. Bell, as they weakened the root, if not the crown.

DR. SIDDALL said amalgam freshly cut would set much quicker than that which is aged, and would be thus better fitted for this operation.

DR. BERRY made his pivots of gold strips soldered together, and relied on King's amalgam.

DR. MORRISON, of Indiana, said no one thing or plan will do for all cases. A tooth could be made to stand without moving, by fastening it with plaster of paris. Then it could be trimmed and shaped as desired. He said Ash furnishes a tooth with a platinum tube baked in it, the tube projecting like a pivot. He would anchor this in with a triangular wire, as has been described, would barb the tube, and insert it into the root. When the dam is securely adjusted, the tooth can be made perfectly dry by using alcohol to absorb the water, chloroform to absorb the alcohol, and then evaporate the chloroform with the warm air syringe. He was glad to hear Dr. Jennings recommend steel pivots. He used piano wire, making it triangular; but getting rid of the moisture he thought more important than the character of the pivot.

DR. CHAPELLE, of Indiana, would use cement rather than amalgams. He would carefully adjust a band to the root and crown, place the band around the root, seeing that he had secured perfect adaptation. He thought, however, that societies should discuss principles, rather than details, of practice.

Some further brief remarks were made on this subject by Drs. Berry, Herriott, Smith, of Columbus, and others; but we were not in condition to report them satisfactorily. Hence we omit all reference to their remarks. We have sketches of the addresses of the retiring and incoming Presidents, which were of the ordinary type, but a little more than ordinarily eloquent. Wherever we have failed to report, or have misrepresented, we ask pardon. To will was present; but how to perform——.

SULPHUR SMOKE AS A DISINFECTANT.

WHEN Naaman the Syrian came to the land of Israel to be cured of his leprosy, his first application was to the King, but he was finally led to the bald-headed old prophet Elisha. The prescription was so simple that he got mad about it. He was told to wash in Jordan, but he thought the prophet should have come out and made solemn passes over the sores. He was about to go home without testing the remedy, but was persuaded to think better of it.

Our experience in reference to disinfectants is not unlike that of the prophet. When asked for the best disinfectant, and we recommend sulphur smoke, the inquirer appears disgusted; yet simple and cheap as the re-agent may appear, it destroys the poison of smallpox, cattle-plague, chicken and hog-cholera, really it is almost difficult to tell what it will not decompose. This is all the more evident when we think that sulphur smoke is simply sulphurous acid in a gaseous form. Its gaseous state enables it to penetrate and thus reach where ordinary disinfectants can not be readily applied. Then it acts in two ways: as an acid it takes alkalies and alkaloids, forming neutral salts, ordinarily called sulphites. And all are familiar with the power of sulphites to arrest or prevent fermentation or putrefaction, so that if neutralizing the alkaline matters is not sufficient the action is carried farther by the sulphites. This explains but half its power if even that much. The sulphur is not yet fully oxidized, and the sulphurous acid has therefore a very strong affinity for oxygen, and in receiving an additional equivalent of it, it is changed to sulphuric acid. Taking oxygen from very many compounds is all that is necessary to decompose or destroy them. But if further action is necessary, the sulphuric acid is itself one of the most powerful re-agents known to chemistry.

Now we hope our readers will all clearly understand how this agent acts as a disinfectant, if not previously familiar with the subject. A few words as to ready methods of applying it may not be amiss. The common massive brimstone is as good for this purpose as the sublimed sulphur. A pound of it is enough for an ordinary room, of ten or twelve hundred cubic feet. A

flat bottom is convenient for the vessel to contain the fire. A little water may be put into it for safety. A common pot of iron or earthenware may be set in the water, a few coals may be placed in it, and the sulphur may be dropped on the coals. The party doing the work should then retire and close the door, and leave matters for six to ten hours, after which the enclosure should be thoroughly ventilated. Stables, cattle sheds, poultry houses, etc., are readily disinfected by this agent, and with an expense merely nominal. It should be remembered that sulphur smoke bleaches as well as disinfects.

But it is often difficult to use sulphur smoke to disinfect a dental office or laboratory; but the same re-agent may be used in a different form. At most drugstores a solution of sulphurous acid in water may be obtained, by asking for liquid sulphurous acid. This can be applied to the spittoon, or other objects, by a sponge or a small watering pot. It may be diffused through the room by an atomizer.

But if not obtainable at the drug store, this acid is readily prepared. The smoke of burning sulphur may be forced into water by a very simple contrivance, till the water is saturated, if a concentrated solution is desired. But a better way is to put scraps or filings of copper into a glass retort, and pour over them a mixture of sulphuric acid and water. Let the nozzle of the retort be under water, in a suitable vessel, and the gas, which arises in bubbles in the retort, is dissolved in water within the vessel.

Perhaps no disinfectant is so much neglected as this. It is cheap, always at hand, and wonderfully efficient. If by this effort increased attention is awarded it, we shall be gratified.

If now and then, when the dentist has finished his week's work, he would treat his office to a dose of this disinfectant, and then have it well ventilated at an early hour on Monday morning, we would not hear so much about the bad health of dentists. It would totally destroy the accumulated poisons from the lungs and skin of his patients and himself. Of course he would remove water-colored ornaments or other things likely to be injured by bleaching.

At another time we may have something to say of other disinfectants, some of them being more convenient for the dental office than this one, perhaps, while none can be more efficient.

We take for granted, too, that many of our readers have pet stock, horse, dog, chickens, or something, and for their habitations, sulphur smoke is *the* disinfectant.

Societies.

“Wherewith one may edify another.”

ALABAMA DENTAL ASSOCIATION.

THE Alabama Dental Association will hold their next annual meeting in Montgomery, Ala., on the Second Tuesday (the 11th day) in April, 1882. A large attendance is expected, and every dentist in the State is earnestly requested to be present, as business of importance to all will be transacted. All dentists in good standing are cordially invited to be with us. Hotels and railroads will give reduced rates to all attending the meeting. The State Board of Examiners will meet at the same time and place.

T. M. ALLEN, *Secretary*.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE commencement exercises of this college were held at the Academy of Music, on Saturday, February 25th, at 12 m. The degrees were conferred by Prof. S. D. Gross, M. D., President of the Board of Trustees. The valedictory address was delivered by Dr. M. H. Fetzer, of Pennsylvania, and the address to the graduates by Prof. W. F. Litch, M. D., D. D. S. The number of matriculants, one hundred and twenty-five, and the number of graduates, fifty, as follows: Don A. Allen, Ohio; M. E. Andrews, Pennsylvania; Thomas S. Atkinson, Pennsylvania; C. W. Barber, Pennsylvania; Paul Bayerle, Germany; G. A. Bianchi, Italy; O. C. Bogardus, New Jersey; N. E. Bowman, Pennsylvania; George H. Butler, New York; W. P. Caldwell, Ohio; John Carter, Connecticut; Alfred D. Clark, Pennsylvania; John M. Cooper, Pennsylvania; C. B. Cowan, South Carolina; L. H. De Lange, Pennsylvania; Charles A. Dougherty, Ohio; J. P. Eldridge, Pennsylvania; M. H. Fetzer, Pennsylvania; O. H. Franklin, Pennsylvania; D. L. German, Pennsylvania; Adolph

Gerstel, Germany; Charles L. Gibbs, Pennsylvania; James Granger, New York; L. J. Graves, New York; Charles Harker, New Jersey; E. W. Harris, New York; Alwin Hennet, Germany; Rhine D. Hertz, Pennsylvania; Jasper N. Jones, Florida; Emil Krüger, Germany; L. H. Leitzell, Pennsylvania; J. A. Libbey, Ohio; F. D. Mann, Illinois; F. Mannhardt, Germany; Julius Neumunz, Switzerland; E. Everett Park, Kentucky; Harold S. Patterson, Minnesota; D. T. Pepper, Pennsylvania; C. H. Peter, Pennsylvania; H. K. Edward Poessel, Illinois; Charles J. Rathbun, Pennsylvania; W. L. Reed, Missouri; L. Restrepo, United States of Colombia; A. J. Sawyer, Pennsylvania; Max J. Sternberg, Germany; W. H. Stryker, Pennsylvania; J. C. Townsend, Delaware; M. T. Vogle, Pennsylvania; S. P. Waugaman, Pennsylvania; T. R. Whiting, New York.

STATE BOARD OF DENTAL EXAMINERS OF ALABAMA

THE second annual meeting of the State Board of Dental Examiners of Alabama will be held at the Exchange Hotel, Montgomery, Ala., on the second Tuesday (the 11th day) in April, 1882, continuing four days. Under the new dental law every one practicing dentistry in Alabama is compelled to have a license from this Board. All parties that have not procured a license will report promptly and procure license and save trouble. The Alabama Dental Association meets at the same time and place.

E. S. CHISHOLM, D. D. S., *Chairman*,
 T. M. ALLEN, *Secretary*,
State Board of Dental Examiners.

THE Texas State Dental Society will meet in Waco, Texas, Wednesday, the 3d day of May, 1882. Stated on the authority of

W. R. CLIFTON, *Corresponding Secretary.*

INDIANA DENTAL COLLEGE.

THIS institution held its third annual commencement on the evening of Wednesday, March 1, 1882. After the invocation of the Divine blessing by Rev. W. A. Bartlett, pastor of the Second Presbyterian Church, Dr. W. L. Heiskell, President of the Board.

of Trustees, addressed the candidates and conferred the degree of DOCTOR OF DENTAL SURGERY on the following: T. M. Harris, of New Albany; W. W. Shyock, of Fort Wayne; F. H. Sawhill, Harvard, Neb.; W. H. Blomily, Elkhorn, Wis.; T. R. Woodard, Knightstown; D. G. Parker, Onolousas, La.; E. W. Sheriff, Paris, Ills.; J. S. Mahan, Bristol, O.; D. R. Smith, Grayville, Ills.; W. M. Ranesdell, Brooklyn, N. Y.; J. E. Bodine, Toledo, O.; R. E. Henshie, Taylorville, Ills.; W. T. Kennedy, Rushville, Ind.; G. L. Henshaw, Greensboro, Ind., and C. H. Murray, Sidney, O. The graduates were then eloquently addressed by Dr. S. B. Brown, of Fort Wayne, Ind.; and, in behalf of the class, the valedictory was delivered by Dr. F. M. Harris, of New Albany. Live long and prosper!

THE NEW YORK COLLEGE OF DENTISTRY.

SIXTEENTH ANNUAL COMMENCEMENT, CHICKERING HALL, FEBRUARY 23,
1882.

THE degrees were conferred on the parties named below by Dr. William H. Allen, President of the Board of Trustees; the prizes were awarded by Prof. Alex. W. Stein, M. D.; the valedictory was by Charles E. H. Phillips, D. D. S., a member of the class, and the benediction, as had been the opening prayer, was pronounced by Rev. J. Tuttle Smith, D. D.

GRADUATES.

Charles P. Allen, Massachusetts; Martin L. Ballard, Ohio; Ruby E. Clifford, England; Alfred Dennis, New York; Frank S. Derby, New York; Charles A. Du Bois, Denmark; John H. Feindel, New York; Anthony A. Formel, Cuba; Edward L. Fuller, Massachusetts; Fred. W. Gillen, New York; Martin C. Gottschaldt, Germany; Addison H. Griffing, New York; Friedrich L. Hesse, M. D., Germany; Alexander Kronmeyer, Central America; Eduardo Lopez, South America; Harry C. Medcraft, Connecticut; Karl J. Milke, Germany; William H. Mitchell, New Jersey; Oscar L. Moser, Germany; Archibald McFadyen, California; Benjamin C. Nash, England; James Neil, Jr., New York; Charles E. H. Phillips, Connecticut; Willis A. Reeve, New York; Richard Shuebruk, England; Roswell O. Stebbins,

California; Albert A. Stillman, New York; Augustus J. Syme, Connecticut; Frederick J. Wells, New Jersey; John C. Westervelt, New Jersey.

The faculty prize of a gold medal was awarded to Martin C. Gottschaldt for the best examinations in all the departments.

The S. S. White Dental Manufacturing Company offered a prize of a dental engine to the graduate who made the best practical full set of teeth on gold, and this was awarded to John H. Feindel. Another prize, offered by the same establishment, was a set of Varney's pluggers for the best thesis on the treatment of exposed pulps in teeth. This was awarded to Richard Shuebruk.

A prize of a bronze medal was offered by Prof. F. D. Weisse, M. D., for the best report of his oral surgery clinics. This was awarded to Oscar L. Moser.

OHIO COLLEGE OF DENTAL SURGERY.

THE thirty-sixth annual commencement of this College was held in College Hall, Cincinnati, Tuesday evening, February 28th. Reading of Scriptures and prayer by Rev. W. F. Mitchell, the degrees conferred by Dr. James Leslie, President of the Board of Trustees; and the prizes were awarded by Prof. H. A. Smith, Dean of the Faculty. The names of the graduates and the award of the prizes were as follows:—

GRADUATES.

Edwin L. Ashton, Michigan; Harry F. Anshutz, Ohio; Clarence W. Bard, Virginia; Alexis Bertrand, France; Charles F. Braffett, Ohio; William A. Bettman, Ohio; A. F. Bowman, Ohio; Edward E. Ball, Ohio; J. E. Barriklow, Ohio; C. G. Burgin, Kentucky; James W. Dennis, Ohio; Charles N. Dann, Ohio; Charles Dappen, Germany; George W. Dengler, Kentucky; C. L. Franks, Ohio; Robert Goeble, Illinois; William D. Green, Illinois; Christian A. Herr, Ohio; Charles G. Junkermann, Ohio; Cyrus T. King, Ohio; W. C. Kerns, Ohio; J. Walter Mann, Illinois; J. H. Maust, Pennsylvania; J. S. Mardis, Pennsylvania; Charles S. Ogborne, Indiana; James S. Perkins, Wisconsin; Legrand B. Perry, Indiana; Al. O. Ross, Ohio; Frank D. Rice, Kentucky; W. H. Smith, Ohio; William H. Todd, Ohio;

Townsend J. Thomas, Iowa; William M. Williams, Ohio; Forest O. Welker, Colorado; Wesley L. Williams, Michigan.

PRIZES.

General prize of a dental engine, presented by the Faculty of the College for the best general examination, was carried off by Forest I. Welker, of Denver, Colorado.

The work on dental surgery, offered by Prof. Clendennin for the best examination in anatomy, was presented to Charles J. Junkermann, who was also awarded the gold medal offered by Prof. Cassidy for the best essay on oral chemistry. Mr. Junkermann is a resident of the city, and would have been given one other prize had it not been contrary to the College rules for any one student to receive more than two prizes. Frank D. Rice, of Kentucky, was awarded the dental case, offered by Prof. Rawls, for the best essay on inflammation and treatment. The microscope, offered by Prof. Clayton for the best essay on microscopic anatomy of the teeth, was awarded to W. A. Bettman.

The prize for the best essay on Dental Hygiene was presented to Charles F. Braffet, of Indiana. Cyrus T. King, carried off the prize offered by Prof. Bell for the best specimen of artificial dentistry, while the gold medal, which was a special prize contributed by Dr. D. W. Clancy for excellence in operative surgery, was secured by J. C. Barriklow.

The graduates were addressed by C. M. Wright, D. D. S., an *alumnus* and ex-professor of the College; and the class oration was by Robert Goeble, D. D. S.; and again our old *alma mater* takes a brief rest, to brighten up her energies for future efforts.

DENTAL DEPARTMENT, VANDERBILT UNIVERSITY.

NASHVILLE, TENN., February 24, 1882.

THE chapel of Vanderbilt University was filled last night to witness the Commencement exercises of the Department of Dentistry. The address on the part of the class was delivered by Marques J. Lunquest, of Alabama; and on the part of the faculty by Prof. R. R. Freeman. The Chancellor of the University then conferred the degree of D. D. S. on the following gentlemen:

Thomas H. Lipscomb, Tennessee; William W. Kemper,

M. D., Missouri; Stephen R. Jordan, Georgia; James W. Hambright, Georgia; John M. Powell, Arkansas; William E. Tillett, Tennessee; William J. Flanders, Georgia; William A. Flemister, Georgia; John H. Magruder, Mississippi; Francis H. McAnnally, Alabama; Marques J. Lunquest, Alabama; James Allen Barr, Kentucky; Thomas M. Allen, Alabama; David R. Stubblefield, M. D., Tennessee.

Number matriculating, 33; among them one lady.

W. H. MORGAN, Dean.

BALTIMORE COLLEGE OF DENTAL SURGERY.

THE forty-second annual commencement of this institution was held in Ford's Opera House at 2 P. M., March 9, 1882.

The collegiate prizes were conferred by the President of the Board of Visitors; the Annual Oration was by Prof. Richard F. Gundry, M. D.; the Class Valedictory was by John S. Bizzell, and the degree of Doctor of Dental Surgery was conferred by Prof. F. J. S. Gorgas, Dean of the Faculty, on the following persons:—

GRADUATES.

Henry Seraphim Abendschein, Maryland; Charles Lee Alexander, North Carolina; Pedro A. Arcentales, South America; Julius Alonzo Ballentine, North Carolina; John S. Bizzell, North Carolina; Gordon H. Claude, Maryland; W. Connor Cleckley, South Carolina; Genaro W. Cooke, South America; Charles William Daly, B. West Indies; Amos Chapin Daniels, Pennsylvania; Willie Ferdinand Davison, Virginia; William Harper De Ford, District Columbia; Charles F. Dinger, Maryland; Louis Picquet Dotterer, South Carolina; Thomas S. Eader, Maryland; Wallace W. Freeman, Maryland; Ferdinand Samuel Gorgas, Pennsylvania; G. Ashman Hamill, West Virginia; Irby Hardy, Virginia; Lewis James Harmanson, Virginia; William Hepburn, Jr., New York; George Wesley Hunt, Pennsylvania; Philip Fletcher Laugenour, North Carolina; Archie McAlpine, Pennsylvania; James P. McDonald, Mississippi; John Miller, New York; George Edward Morrow, Maryland; Steuart Brown Muncaster, District Columbia; Gustavus North, Iowa; George A. Patrick, Georgia; Hugh Pirkey, Virginia; W. Chalmers Ralston, Penn-

sylvania; B. Taylor Read, New York; Norman J. Roberts, Illinois; José Justiano Sanjurjo, West Indies; Samuel P. Sharp, Tennessee; James E. Shields, North Carolina; Charles Alfred Slocum, New York; Henderson Snell, North Carolina; Mordecai Gist Sykes, Maryland; George G. Taylor, Virginia; Lewellen C. Tucker, Virginia; T. John Welch, Virginia; B. H. Whittington, Maryland; Robert Campbell Williams, M. D., South Carolina; John M. Wilson, Pennsylvania; Cincero Reneta Yearick, Ohio.

Forty-seven graduates out of a class of ninety-three matriculants.

KANSAS STATE DENTAL ASSOCIATION.

THE eleventh annual meeting of this Society will be held in Topeka, Kansas, commencing Tuesday, May 2, 1882. The usual reductions in railroad fares and hotel rates will be secured, and there will be exhibited by dental dealers complete stocks of dental goods. For further particulars address

J. D. PATTERSON, *Secretary*,
Lawrence, Kansas.

Correspondence.

"I charge you that this epistle be read."

Editor of the Ohio State Journal of Dental Science:—

MY DEAR DOCTOR:—I wish to say a few words in your valuable journal upon what I consider a very important subject, and that is, the selecting of teeth for an artificial denture.

I will ask your readers to examine carefully the mouths of *all* their patients, and observe if they can find *any* mouth where all the teeth *are colored alike*. Of course the body of the teeth will be of the same color, unless by some misfortune some teeth have become dead; but I mean living teeth. I will risk my reputation that they will not find in *any* mouth teeth all of the same color or shading. Now, in selecting teeth for a denture, why

should not the same principle be carried out that Nature carries out? And I answer: Because the manufacturers of teeth make them and color them in sets all alike, and arrange them in sets; and it is too much trouble to mix a number of sets of single teeth, and impossible to find in pressed block-teeth proper colors. And we wonder why artificial teeth look *so unnatural*! I have looked into this matter for some years, and am convinced, in my own mind, that my premises are correct, to wit: Artificial teeth of the same color in a set look all of one color in the mouth, while natural teeth do not. Let any one look at the teeth—artificial I mean—that they see traveling around the streets, and say how many look like anything but crockery ware. I care not how good the adaptation may be, or how well the contour of the features have been restored, if the teeth have not been selected by an artist, they will look like anything but natural teeth. Now, if I am right, and I wish to be corrected if I am not, and dentists will demand of the makers of teeth that they be colored to correspond to natural teeth, I *think* it will tend to advance dental art. I have called the attention of a good many to the facts I have stated, and found so many to agree with me, that I wish to extend broadcast a little seed in the right direction, which I hope may bear fruit. It at least will provoke discussion; and that will demonstrate whether I am right or not.

Yours truly, NICHOLAS N. NOYES,
Prof. Dental Art and Mechanism, Boston Dental College.

PREMATURE ERUPTION.

Editor of the Ohio State Journal of Dental Science:—

My attention was recently directed by a father to an inferior lateral incisor in the mouth of his baby boy, four weeks old, which was fully erupted when the little fellow was born. Remembering the case of the one-eyed child recently reported in the *Register*, I inquired of the mother if she had experienced any trouble with her front teeth during her late pregnancy, and she replied affirmatively, and pointed to the corresponding tooth in her own mouth, which was decayed and defunct; and as it had felt sore occasionally, she had been in the habit of shaking it with her fingers, which seemed to afford temporary relief. D. D. S.

Books and Pamphlets.

"Of making many books there is no end."

THE NEW ENGLAND JOURNAL OF DENTISTRY AND ALLIED SCIENCES. Edited by Associated Dentists. CHARLES MAYR, A. M., B. S., Scientific Editor.

Specimen copy (January) received; intended, doubtless, to wipe our weeping eyes, as we mourn the *Miscellany*, which has gone where the good journals go, if only sufficient time is granted them. We are sad for the demise, and we accept the solace, hoping our publishers will exchange with the new venture, as we shall expect to derive much pleasure from the perusal of our Yankee namesake.

This *New England Journal* is to be published monthly, by the New England Journal Company, Springfield, Mass. Terms two dollars per year, in advance. The specimen number contains thirty-two pages, and is neatly gotten up. Long life and prosperity.

QUIZ QUESTIONS. Course on Dental Pathology and Therapeutics, Philadelphia Dental College, Prof. J. FOSTER FLAGG, D. D. S.; Answered by WILLIAM C. FOULKS, D. D. S., President of the Quiz Association of the Philadelphia Dental College. Philadelphia: GEORGE A. FOWLER & CO., 2228 Ridge avenue. Cloth, \$2.00.

A neatly gotten up book, and all that its title page imports. Those who like question and answer better than narration will find this very readable. It contains ninety-eight pages, with quite a number of blank leaves inserted for memorandums, or additional questions.

THE THROAT AND THE VOICE. By J. SOLIS COHEN, M. D., Lecturer on Diseases of the Throat and Chest in Jefferson Medical College, and on Physiology and Hygiene of Voice in the National School of Elocution and Oratory. Philadelphia: P. BLAKISTON, SON & Co., No. 1012 Walnut street.

This is one, and among the best, of the American health primers, edited by W. W. KEEN, M. D., surgeon to St. Mary's Hospital, etc., and published as above. In paper, 30c.; cloth,

50c. It discusses the throat, 1, its general construction; 2, care of the throat; 3, acute sore throats; 4, diphtheria; 5, croup, and on through to 15, naso-pharyngeal catarrh. Part II. discusses the voice in all its aspects, concluding with "The Care of the Voice," as its ninth division. But we advise the reader to get the book, and then he will see a genuine *multum in parvo*.

A MANUAL OF DENTAL ANATOMY—HUMAN AND COMPARATIVE.

By CHARLES S. TOMES, M. A., F. R. S. With 191 illustrations. Second Edition. Philadelphia: Presley Blakiston. 1882.

THIS is a carefully prepared and neatly executed volume of 440 pages. Of the reputation and talent of its learned author nothing need be said; but it is safe to say that the book is worthy of its authorship. This edition has been thoroughly revised, and much of it re-written, and a number of new illustrations have been added. The book is divided into fourteen chapters:—

1. The Nature of Teeth—Description of the Teeth of Man.
2. The Maxillary Bones and Associated Parts.
3. The Dental Tissues: Enamel, Dentine, etc.
4. The Development of the Teeth—in Fish, in Reptiles, in Mammals, etc.
5. The Development of the Jaws and the Eruption and Attachment of the Teeth.
6. The Teeth of Fishes.
7. The Teeth of Batrachia and Reptilia.
8. The Teeth of Mammals—Introductory Remarks—Homologies of the Teeth—Milk Dentition.
9. The Teeth of Monotremata, Edentata, and Cetacea.
10. The Teeth of Ungulata.
11. The Teeth of Sirenia, Hyracoidea, Proboscidea, and Rodentia.
12. The Teeth of Carnivora.
13. The Teeth of Insectivora, Chiroptera, and Primates.
14. The Teeth of Marsupialia.

We are thus minute, because we wish to arouse the reader's interest in the book. The paper, printing, and binding are good, and the illustrations are most excellent. The retail price, we believe, is \$4.25. It may be obtained from booksellers in general, from the publisher, and, as is true of all other professional books, from RANSOM & RANDOLPH.

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Contributions.

"A word fitly spoken is like apples of gold"—SOLOMON.

CHARACTERISTICS OF SALIVA IN SYPHILITICS.

BY DR. A. W. HARLAN, OF CHICAGO.

Nor very much will be said concerning the saliva of persons infected with the virus of syphilis, for in most cases there is no appreciable difference existing between such saliva and that from the mouth of a perfectly healthy subject. It is not my purpose to dwell on the characteristics of syphilitic saliva, for the reason that they have no practical bearing in connection with the practice of dentistry, except as shall be mentioned further along; but the lesions of the mouth, resulting from inherited and acquired syphilis, are so numerous in form and variety, and are so often destructive to the bones of the nose and mouth, that it is incumbent on all dental surgeons to be familiar with their appearance, duration, and treatment, primarily for the benefit of the patient, and secondarily for self-protection. Therefore, it has been suggested that a brief resume of the order, character, and general appearance of mouth lesions may not prove uninteresting. Saliva

from the mouth of a person suffering with syphilis in its second stage presents only this marked physical difference from saliva in general: a sufficient quantity collected for the purpose is poured into a vessel containing water; it sinks more quickly and does not mingle with the water so readily as non-syphilitic saliva; on testing, it is found to contain more albuminous matter, and when there are extensive patches and erosions of the mouth and pharynx, it is secreted in abundance, accompanied by increase in size of the submaxillary glands; during the eruptive period of syphilis it is very much lessened in volume and gives an acid reaction. Saliva is the only one of the physiological secretions which is apt to be the vehicle in spreading the poison of syphilis, examples of which are here presented:—

In one case a sailor went from house to house tattooing, and was observed to wet the needles in his mouth before pricking in the colors. Fifteen out of twenty-two persons tattooed acquired syphilis. On examination his mouth and throat were found covered with ulcers and erosions; the pus mingling with the saliva being pricked in with the coloring matter caused the inoculation. Two persons were indiscreet enough to use a tooth-brush which had previously been used by a syphilitic; they both acquired the disease. An old Frenchman smoked a pipe which had been used only a short time previously by a syphilitic friend, and in due course the initial chancre appeared on his lip. By searching the literature of syphilis, numerous cases may be found where kissing has been the means of communicating the disease. Two cases are reported in Woods Library of Medical Science, 1880, volume on venereal diseases, by E. L. Keyes, M. D. In twelve thousand cases reported from hospitals, three and one-third per cent. exhibited the primary sore on the lip or within the mouth; more than ninety-four per cent. of the remainder showed the chancre on the genitals or anus. Whistles and trumpets sold on the streets and wet with the saliva of the venders, may be infectious. In some regions where glass-blowing establishments are numerous, laws have been enacted to prevent the use of the mouth-tubes, except by the owners, on account of the liability of communicating syphilis. Any article used by a syphilitic in the mouth when it is eroded or covered with ulcerous patches, may inoculate the innocent user, if it be not thoroughly cleansed. Many an innocent nurse has acquired syphilis by suckling a child inheriting

it, as the mouth lesions appear so early in most cases that they are unable to escape unless the nipple remains unabraded. There are some who believe that the twisted end of a new cigar having been wet with saliva of a syphilitic may be contagious. The use of the rubber dam in the mouth of a syphilitic, and its subsequent use in the mouth of another, without perfect cleansing, might prove infectious; it would be if any blood were adherent, as it is known to be infectious. Forceps that have been used and not thoroughly cleansed; scalers and lancets, particularly abscess lancets, and other instruments used by dentists, oculists, and aurists, unless properly cleansed, would spread syphilis. (See Bumstead and Taylor, E. L. Keyes, and Ziemssen, on venereal diseases, for instances of infection by unclean instruments.) In circumcision and vaccination numerous cases are reported, especially in the latter. In transplanting teeth it would be possible to communicate syphilis, but J. Hunter's claim that because an abscess formed opposite the root of the transplanted tooth in three or four weeks after the operation, that it was a chancre, is of course erroneous; the abscess appeared because the pulp was not removed from the tooth, and in three or more weeks it decomposed and the gas had to have exit; hence the abscess. It is impossible to point out the numerous methods of acquiring syphilis in a brief paper. Suffice it to say that we cannot be too careful of our own fingers or our patients' mouths in any suspected case.

An abrasion or a surface capable of absorption, if it have, in contact with it, the poison of syphilis for a sufficient period of time, no matter where the spot be located, is as sure to exhibit the chancre as it is sure to result from sexual contact when one of the persons is diseased. From the fact that persons who acquire syphilis usually resort to the venereal specialist, dentists generally may be ignorant of the cause of the disease in its primary form, except from reading or when medically educated; but when the secondary symptoms progress far enough to exhibit excoriations, erosions, ulcers, and mucous patches in the mouth and throat, the dermatologist necessarily sends his patient to a dentist in order that all tartar shall be removed from the teeth, rough corners filed off and pieces of roots removed, ill-fitting dentures trimmed and polished, so that the tongue, cheeks, and lips may be free from such sources of irritation. If the person

infected falls into the hands of a dentist before consulting a physician, his knowledge of the clinical features of the disease ought to enable him to attend to the hygiene of the mouth so effectually that the treatment of the case constitutionally may be left to the venereal specialist until a cure is effected.

An outline may now be presented of the course of syphilis. After contact with the poison a chancre appears in three or four weeks, or longer; the chancre always appears at the point of inoculation; in two weeks thereafter the adjacent lymphatic glands enlarge, but seldom suppurate. After a month or six weeks has elapsed, an eruption on the skin, which may be quite general, appears, usually preceded by slight fever, accompanied by headache, rheumatic pains at night, and an enlargement of the epi-trochlear and post cervical glands; co-incident with these symptoms the mouth lesions are met with, consisting of mucous patches, erosions and ulcers; they are concomitant from time to time with other general symptoms of the disease during its whole course. After the expiration of a year, the mouth lesions are much worse, being usually whitened and excoriated patches, ragged ulcers upon the fauces and in the mouth, especially deep ulcers on the inside of the lower lip and opposite the last molar teeth. The tongue white and furred, which cannot be scraped off without bleeding, its edges and under surface raw, and the adjacent nasal mucous membrane covered with dark yellow and brownish scabs, a thickening and fissuring of the orifice of the nostrils, with the breath quite offensive. The mucous patch when once seen is not likely to be confounded with that from any other affection. It is nearly round and raised slightly, of a dirty white color, sometimes red or granulated, and covered with a puriform secretion; its size varies from a point to that of a large copper cent, patches occur on the tonsils, the whole of the pharynx, within the lips, the nose, trachea, larynx, and upon the tongue or under it. They are generally painless, unless surrounded by erythema, irritated by smoking, or a rough tooth, or some similar cause. A person with a mucous patch upon the lip or within it, is far more dangerous to a community than half a dozen people with developed chancres on the genitals, as may readily be seen when it is known that the secretion from it is infectious; lobing of the tongue, which is often observed, is generally the result of too vigorous use of mercury, and is not the

result of syphilis in any stage. Chancre of the lip, which is most often seen in hospitals, is globular or oval, angry-looking, and the size of a nickel; many of you have seen it; it is highly infectious. Scaly patches appear in the mouth after two or more years, and their favorite locality is at the angle of the mouth, the tip, sides and dorsum of the tongue; frequently masses of overgrowth, with adherent epithelium, cover a patch under the tongue, which, when detached, are as thick as a knife blade; in some respects they resemble ichthyosis, but a close inspection of this syphilide marks its color a mottled bluish white, and no mistake need be made concerning its origin; these usually require nothing more than local treatment. Gummy tumors of the hard and soft palate come without pain, but when once formed they destroy all tissue which has become infiltrated; they are peculiarly destructive of the bones of the mouth and nose, and need to be heroically treated with the iodides or mercury, internally.

It is generally agreed that syphilis causes the most extensive mouth and throat ravages, especially destructive of bone, when no previous scrofula or lupus can be traced; hence the disfigured nasal organs and injuries of the hard and soft palate, which are frequently irreparable. Gumma of the tongue differs from epithelioma in this: it occurs at any age, has syphilitic history, commences deep, and feels like a pea between the fingers, is some times multiple, and *may always be found on the posterior aspect and sides, but never underneath the tongue.* When ulceration takes place, it uncovers a deep cavity, and is usually painless, which is characteristic. When excised completely, it does not recur. The appearance of mouth lesions from inherited syphilis is often as early as a week from birth to a few months or even years, yet the latter occurs very rarely. Snuffling, and a general coryza, with excoriations around the nose and mouth, indicate very plainly the cause of the trouble; the child whines, its voice is cracked, and the skin drawn tightly over the face, which gives it an oldish look, but the development of patches at the angles of the lips and orifice of the nostrils, are usual and correct points in diagnosis. After the seventh year the notched superior central incisors are a sure indication of inherited syphilis. The whole train of symptoms are observed from inherited that are seen in acquired syphilis, except that there is no chancre; the lymphatic glands do not enlarge, and the nails are affected either

by impairment of nutrition or ulcerative onychia, the latter of which is most frequently noticed.

TREATMENT.

The local treatment of mouth lesions from acquired or inherited syphilis, is perfect cleanliness, the use of a soft brush and an alkaline powder or wash; the teeth should be polished and roots be extracted or pivoted; tobacco must be forbidden; and mild astringent washes and gargles be prescribed for young children. Strong warm tea with X grs. borax to the \bar{z} i, or V grs. chlorate of potash to the same, are effectual for infants and children. Patches and ulcers may be painted with a solution of nitrate of silver, or solution of corrosive chloride of mercury, grs. ii j to \bar{z} i alcohol, daily; or when necessary they should be touched lightly and carefully with a solution of acid nitrate of mercury twice a week, or any other favorite effectual remedy may be used. If there are gummata likely to involve the bone, iodide of potassium or iodide of sodium should be prescribed in V to X gr. doses or larger, during or after meals. The sodium causes less disturbance of the stomach. If the bones of the mouth have become denuded of their periosteum, no effort should be spared to prevent further caries or necrosis, but no local remedy will be found efficient. If the dentist be timid or wanting in definite knowledge of the needs of the patient, he should be sent to his physician without loss of time. In most cases the dead bone will separate from the living during prompt and appropriate constitutional treatment. Caries must be operated upon beyond the line of decay, then pursue a systemic treatment, which, if kept up sufficiently long, will certainly result in a cure.

It is hoped that if nothing new has been presented in this paper, it will serve to stimulate the unthinking to an investigation of the subject which has been so imperfectly sketched for your consideration.

DISCUSSION.

DR. SWAIN: I have made a good many tests with a view to find whether the normal condition of the saliva is acid or alkaline, but without satisfactory results. I found the saliva in some cases acid, and in others alkaline, in persons of equally good

health and similar habits, the tests being made from fifteen minutes to half an hour after eating. In more than half the cases it was acid. Twice during the year I have had in my office a harmlessly insane young lady. In her mouth I have found the saliva uniformly acid, but her teeth do not decay. She is about thirty years old, and has only three fillings in her teeth. Stringy saliva is almost always acid, and in such mouths, when the enamel turns white and begins to decay, the free use of precipitated chalk will often check its progress.

DR. BROPHY: Syphilis cannot be inherited from a father unless the mother has it. That is, the mother must acquire it before the child will inherit it, and it is not communicated from one person to another by the *physiological* secretions, but the saliva of syphilitic persons may often be mixed with more or less serum or pus from some abrasion on the lips or mouth.

DR. RICHARDS: During the last few months I have made a great many tests of saliva, in all classes of mouths, both healthy and unhealthy. I found it alkaline in a majority of cases, and especially so in robust and healthy persons. I saw many cases of rapid decay in mouths having alkaline saliva, but between the teeth, where food was lodged and uncleanly, it was acid, and *there* was decay. If we can induce patients, after having had fillings made, to keep the proximal surfaces clean, the operations will usually be preserved. I believe a great deal of decay is caused by the food that lodges in the proximal spaces and remains till decomposed, for want of proper attention to cleanliness.

DR. BLACK: I have made many examinations of saliva with the same general results as described; but we never find decay without there being an acid condition *somewhere* in the mouth, and yet teeth do not *necessarily* decay because the saliva is acid, though they never decay without an acid. Many patients *always* present an acid saliva whose teeth have no decay. There is some other element in this question which we have not yet found out.

DR. SPALDING: The reports indicate that the chemical condition of the saliva does not necessarily produce decay.* If

* In this discussion the word "saliva" usually means the mixed fluids, saliva, mucus, etc., as found in the mouth.

properly developed and well calcified, teeth will resist all these conditions of the saliva, it is the duty of the dental profession to find out the cause of the defective development of human teeth now so prevalent.

DR. BLACK: I wish to say this. Imperfect development is not a cause of decay, but a condition favoring it. Decay is the destruction of the tooth, molecule by molecule, by some substance attacking it from without.

DR. SWAIN: I have arrived at the same conclusions as Dr. Black and Dr. Spalding, that the saliva is not very much responsible for decay. Unquestionably, the acids generated from food lodged at the necks of the teeth will produce decay.

DR. BLACK: The secretions of the mouth as they often become vitiated while contained there, I do regard as holding a causative relation to decay.

DR. SPALDING: I agree with Dr. Black, except that in two cases of the most rapid decay that I have seen, I could find no acid reaction at any time, in very numerous tests, in all parts of the mouth. If the presence of an acid is essential to decay, how does decay begin in these cases? I have no doubt that after it had made some progress an acid reaction might be obtained within the cavities of decay. We have only just begun to investigate or to understand this subject.

DR. BROPHY: Alkaline secretions will injure the cementum, and alkaline washes should be used with caution, if the cementum at the necks of the teeth is exposed.

DR. BLACK exhibited photographs of a girl now thirteen years old, who at five years old lost the cheek and lips of one side by a slough caused by salivation. The lower jaw is firmly ankylosed. The development of the teeth has proceeded with this condition existing; the shedding of the temporary teeth and the growth of the permanent ones has been perfectly regular, except that the teeth stand a little outward from the normal position. The special point of interest in the case is this: The buccal surfaces of all the exposed teeth have suffered from erosion, which is precisely the same in appearance as that which we find in normal mouths. The eroded surface is hard and smooth as

glass, and some of the teeth are eroded almost to the pulp cavity. These teeth have never been used in chewing food; they have not been bathed in the saliva, except as it overflows the mouth and runs out upon them, which it does a good deal. They have never been filed or cut in any way. As to this point I have the evidence of the girl herself, of her parents, and the family physician. The teeth of the opposite side have their proper covering of cheek and lips, and show no trace of erosion, and are otherwise perfectly normal. This case strikes me as furnishing a new fact in regard to abrasion or erosion of the teeth, or at least a case occurring under such novel conditions that I think it well to place it on record.—*Illinois State Dental Transactions.*

NATURE'S ROYAL FAMILY.

AN ADDRESS, BY GEORGE WATT.

Gentlemen, Alumni, Brethren, Friends:

THE FIRST TIME is an overwhelming factor in the tests of human fortitude and self-possession. All things come easy by habit. Practice makes perfect. But practice implies a beginning of effort—a first time. Habit, too, speaks of test after test, and also that the thing tested, the subject of the habit, like the new boot, did not sit easy till after it had been worn a while. Ask the most experienced coquette if her cheeks did not burn and her heart flutter, at the primal proposal of love's young dream. Ask the most gifted orator, the most eloquent statesman, if his maiden speech did not parch his lips and burn his throat, till the necessary sip after sip suggested the idea of a windmill running by water. Ask yourselves, now that for the first time you are dubbed by a professional degree, with its legal parchment, if through all the early hours of this day you have felt easy, calm and self-possessed. Answers to all these may lead your hearts to sympathize with the embarrassment felt now and here by him who addresses you, whose wrinkled brow and frosted locks certainly testify of experience, yet not such experience that the present effort and position are not first-time trials, with their

essential embarrassments, requiring a good degree of moral courage and will-power to prevent failure. True, it was once his lot to address a class, now matured practitioners of your chosen profession, but then he was a member of the faculty of the institution conferring the degrees, and hence he was addressing the familiar faces of his late pupils, and not strangers, as now. True, it was once his lot to wait, as you, and to receive from an older institution, by similar authority, the same degree for which you have successfully contended; but then he listened to the valedictory, while now he delivers it.

The period reached by you this day, in the college curriculum, is called the COMMENCEMENT. In your careers of professional lives you have attained to your commencements. And doubtless, in looking forward to it, you have silyly felt that the term is a misnomer. Commencement, indeed! You have regarded it as the close, the end, and not the beginning of your professional efforts. But were you professional men at the opening of the college term? Were you such even this morning? Verily, it is the *commencement* of your professional lives, the commencement of your lifelong battle with disease and suffering. Let it be your commencement in fulfilling the high, hopeful and honorable resolutions silently adopted by each of you for the government of your conduct and lives, as you practice the profession of your choice. And when the touch of Time has frosted your now youthful locks, and his sharp finger-tips have scraped furrows in your brows, you will recall this event and its scenes, as the world-wide wanderer looks back to the day of his departure from the parental mansion, and then, indeed, will this seem your commencement in the most rigid interpretation of the word, and as the wanderer clings to and cherishes the parental gifts and parting tokens, then will you honor and prize the parting tokens given you this day by your *alma mater*.

But what shall I say? Your time must not be wasted by mere idle words! But no word of mine, now and here, can better fit you for the professional battle before you. I must take for granted that you are guided by the examples of your teachers, as you have been qualified by their instruction, while by the parchments in your possession I know you have been endorsed by their judgment—that weighed in the balances of impartial, exhaustive examinations, you are not found wanting, but have

reached "unto the measure of the stature of the fulness of" professional manhood, and are therefore my equals, ready and able to confer with me as to our mutual interests in professional science, and are no longer babes or children to be fed on mental pabulum digested ready for your intellectual nutrition. But found on the same professional level, members, indeed, of the same family, let us join in fireside discourse worthy of the family to which we belong. Let us talk of a topic that will interest all the members of the family.

As floating gossamers, wafted by the breezes of the universe, shall we discuss our fellow molecules? As fragmentary matter, shall we explore our structure and investigate the question of the elements used in our formation? Shall we tarry to inquire of what we are, and with what we are? Shall we survey all within, and look at all without, that we may know ourselves and our environments? No! no! Let us not fence more land than we can till. Let us not overtask, lest we be tempted to overstep. These suggestions all imply work, while age, on my part, hints at quiet and rest, and, on your part, months of toil, in the companionship of lamps by night and lectures by day, call for relaxation, if not amusement. But the tyrant fashion or habit expects us to spend this hour together; and how shall we spend it? I am an invited guest to a meeting for friendship. You would not put me to work. You are the heroes of the meeting, the youngest sons, and therefore the pets of your *alma mater*, bidding her this day farewell, and going forth with her blessing, and thus, as you are trimmed out in your holiday suits of mental attire, we must not exact toil of you. But the grim tyrant, habit, grudging time squandered, demands that we do something; but can we not steal a march on his morose highness, and amuse ourselves while pretending to work, by playfully studying pleasant scenes and incidents in the biography of the royal family of the Kingdom of matter? Thus:

In the long ago, when Time was a babe, before the cock-crowing for Creation's dawn, about the time the morning stars sang their first concert, and the sons of God shouted an encore for joy, there was a royal element, a grand, princely old entity, who from the dignity of his character and the mightiness of his power, his influence over his comrades, and various other royal attributes, was recognized by all of materiality as Lord Oxygen.

His throne is on the storm-cloud, and the forked lightning is his scepter; "his pavilion round about him are dark waters and thick clouds of the skies;" he "flies upon the wings of the wind;" hail-stones are his messengers, and coals of fire are kindled by his breathings, as channels of waters are seen in his pathways. The world's foundations were laid by his hand, to perish in the great day at the blast of the breath of his nostrils. The earth quakes and trembles in the assertion of his power, and the hills move and are shaken when he is wroth. He steps on the mountains, and they burst forth in volcanoes. He walks over cities, and they are carried away in conflagrations, or crumbled into dust. And at all times his energy and industry are co-ordinate with his power. Other monarchs rest after they have reached their thrones, and their titles are recognized; but success seems only to drive him to deeds more daring and desperate. And nothing escapes him, for he seems almost omnipresent. Climb to the highest peak of the loftiest mountain range, and he is still above and around you. Dig into the deepest recesses of mundane mysteries, and his works testify he has been there before you. Fly to the ends of the earth to escape his presence, and he will laugh as he shows you that not your own efforts, but his assistance has carried you thither. Drown yourself in the ocean's depths, and he will lay you gently down on his own quiet bed, and shroud your pale corpse with winding sheets of his own weaving. To us he is practically omnipresent; for he goes whither we go, abides where we abide, and we cannot away with him. Ask not, then, where is this mighty king of material elements. Ask, rather, where is he not, since he is high above the mountain's crag, and far below the ocean's bottom,—since he carries the eagle in his loftiest flights, and accompanies the miner deep into the bowels of the earth, and is there even before him. Shall we ask the way to the palace of the king who rides on the swift wings of the wind and rejoices in the society of the storm cloud and the tornado, playthings of his own creative fancy? Would you meet him in the middle of the mountain, seek him in the solid rock, or look for him in all things that live? Go, then, and your quest shall meet with its full reward.

But hold! Besides his practical omnipresence, with god-like attribute, he is quite invisible; and how shall we recognize him? "Seeing is believing;" but you cannot see him. You may meet

him in the highways and byways, and his presence is unappreciated. You may lie folded in the embrace of his mighty arms, but you may not look on the majesty of his countenance; for eye of mortal may not see even his back parts. His presence is felt, not seen. He is beheld in his works; but form and feature remain unseen.

If seen only in his works, it becomes us to inquire what they are, and where are they? But tongue must fail, and pen fall short, in announcing and recording their catalogue. He forms the ocean and the land, controls the atmosphere, supervises all changes on the face of the earth. Ever busy, he forces his kindred elements to obey his absolute will, and toil with him in his manifold labors of beneficence or woe. He causes one to form the dew and the raindrop, the snowflake and the frost crystal, the icicle and the glacier, the cascade and the cataract, the fountain and the rill, the river and the ocean, the storm cloud and the rainbow, and the crimson curtain that veils the setting sun —

Ere jocund day subdued departs,
And somber night lights up his lamps.

With another element he blends to form the balmy atmosphere, thus giving breath —

“Enough to satisfy the needs
Of every thing that lives.”

He fans the brow of the bashful maid till he bleaches it to marble; yet, with the same breath, he paints her cheeks to the rose's hue. He floats the gossamer, fills the sails of the merchant's ships, and carries aloft the school boy's kite. He sets forth his wrath in the whirlwind, his smiles in the zephyr, and his lullaby song in the Southern breeze. When greatly enraged he carries the pestilence in his bosom, and sows it broadcast before him, as he goes breathing out “threatenings and slaughter” against all found in his pathway; but when pacified he regales us with the perfumes of Araby the blest. He causes the “spikenard to send forth the smell thereof, with the fragrance of a cluster of camphire in the vineyards of Engedi, whence he causeth the vines with the tender grape to give a good smell, as he cometh out of the wilderness perfumed with myrrh and frankincense.” The north wind awakes, and the south wind comes at his bidding, to blow upon the gardens of spices which he has cultivated for his own delights. He, too, carries the rain clouds, and assorts and

sifts the snowflakes. He holds up the vapors that form the refreshing dews, and the beautiful frost crystals; and he hangs up the black cloud as a background to the bow of promise, the token and seal of the earth's safety. But time would fail to tell of a tithe of his ways and deeds while partner with this one element trained to his service.

He teaches another to form the rocks that we may build houses for protection and castles for safety, while he forms, assorts and sifts the sands of the seashore for pastime. He burns a bright metal to lime, then blots the diamond from our sight, giving in its place a deadly poison, which is held from harm by the ready lime, thus forming the solid marble, that beauty may be perpetuated by the sculptor's chisel. He wipes out want by supply, through ships wafted and carried to desired havens, or he forges the lightning train, and on tracks of his own construction he defies resistance, mocks at time and laughs at distance, making man ubiquitous. But these only when he is at leisure. If pressed for time, he commands the lightnings, and sends them on servile errands over lands and under seas, outstripping time along the wiry ways he has laid for their guidance.

Should not such an element be patronized and pacified? for none have hardened themselves against him and have prospered. Iron and brass are but brittleness with him, and weapons of steel he grinds to powder. Silver is blackness in his touch, and gold becomes fine dust before him. The leaves of the forest wither at his touch, and nature shrinks from his blasting energies. Think of the destructions and desolations in his career of ruin! Nations have been blotted out by his breath. Great Babylon and the "eternal city" have fallen by his hand; and while the winds wail a requiem over the dead past, he raises a shout of triumph in the gale, and rushes on to new conquests. He forges the thunderbolts of war, devours the widow's bread to form the demon drink that fills the world with woe, and changes men to devils. He is the pitiless executor of the sentence, "Dust thou art, and unto dust shalt thou return."

With all these before us, like sages who sacrifice to devils, and savages who worship the storm-king, shall we fall at his feet and do reverence to this mighty element which will one day crumble us to dust? Nay—we must inquire further; for we assimilate that which we worship. Let us then turn from

these traits and think of his goodness; and possibly here we shall find something befitting our homage. At being's dawn he breathed into our nostrils the breath of life, and he breathes new life into us still every second, furnishes us food and drink, comfort and safety, amid luxuries and blessings beyond the fancied stories of fabled dreams. He smiles through all our senses—he paints the flowers and dyes the gay green robe of field and forest. And even “when chill November's surly blast,” with wailing winds, announces the fading of the foliage and the death of the flowers, he bedecks the forests with death-ropes of delight and beauty, till “even Solomon, in all his glory,” was not so gorgeously arrayed. He paints the leaves with crimson, and gold, and purple, and scarlet, till even the fastidious south wind accepts them as substitutes, and no more

“ * * * Searches for the flowers
Whose fragrance late he bore.”

And daily and hourly he changes the scenes, displaying new pictures of glory and beauty, till the eye wearies with the variety.

And now, must an element so noble, grand and powerful, so arbitrary yet so cordial—must he muse in solitary grandeur? Must he pine in the solitary loneliness of isolation? Nay, verily! Read the family record of the royal household of the Kingdom of Nature. There we learn that He who sits on the throne of the universe, whose is the dominion, and the power, and the glory, thought it not good that an element so lordly should be alone; hence, “He spake, and it was done,” and thus a helpmeet for him was provided, and a beautiful bride sprang up by his side, and their marriage was sealed by the lightning's flash, and announced by the thunder's roar, and we are told, in the record of creation, “that darkness was upon the face of the deep, and the spirit of God moved upon the face of the waters.” Thus was it decreed by the Mighty One that those royal atoms should be no more twain, but one molecule. Thus, in the annals of science, have we recorded the formation of the first family in the great kingdom of the material universe. As the lightnings have revealed and the thunders announced the marriage of the stately, grim Lord Oxygen, we must announce the bride as the quiet, meek and beautiful Lady Hydrogen. And now, would you worship at the shrine of antiquity, and revere first families, here is something worthy of your devotion, found in a match of affinity,

a case of pure love at first sight, a union so close that for thousands of years these royal atoms were regarded as if even by nature not twain, but, as they really are, one.

But what of the bride? Who? and of what household and lineage? Whence comes she? Hold! How can I introduce her? She will not sit for her likeness, nor even unveil. As a modest wife, she glories in her lordly husband, but shrinks timidly from all display. Yet is she known by her works, more truly than is her royal husband. In deeds of beneficence she is above all. "She stretcheth out her hands to the poor; yea, she reacheth forth her hands to the needy." While many have done virtuously, yet she excels them all. Ask the forest the secret of its growth and beauty, and it refers you to the good Lady Hydrogen. The flowers display their bright hues and fragrance as gifts from the bride of Lord Oxygen. You see her pencilings in the rainbow, and her art touches in the rose. All the elements rejoice in their queen, and delight to serve and honor her. And why not? Why not even we adore and worship such brilliance, and beauty, and gentleness, and purity, and grandeur, and tenderness, and faithfulness, and industry, and energy? Shall the queen of science, with all these attributes, be viewed with indifference? Shall we become sentimental over the beauty of Helen? or enthuse before the statue of Venus, and not be filled with rapture in the presence of the queen of all beauty, as pure as the angels, the seraphic bride of Lord Oxygen? "As pure as the angels!"—as purity itself. The touch of filth cannot defile her, nor the slanderous tongue defame her, even though the poison of asps were under the lips that aid its utterance.

"Beauty is vain," and oft a temptation, but never when based on such purity as her's. Tempted by the fury of passion, those elemental bandits—Sulphur, Chlorine, and Phosphorus—kidnap and carry her off, yet they find, in her beauty, charms not for them. The grandeur of countenance displayed in her constancy appals them, and protects her from outrage, and where they expected riotous fullness of joy, because of her presence, all is acrid and sour; and when her royal husband comes to her rescue, and consumes them with the breath of his mouth, spotless and pure as the virgin immaculate, she flies to his protecting embrace, "with joy as a new-made bride," "and the heart of her husband doth safely trust in her."

But of what value are all her grandeur, queenliness, gentleness, and beauty, in comparison with her goodness? She blesses, not for applause, but for sake of blessing. So airy, light, and gay, yet so gentle withal, we would expect her to play with the gossamer, romp with the butterfly, or sport with the blue ether, beyond the clouds, above the sky and among the stars, to join the meteors in their merry chase after the comets, to play "hide and seek" in the milky way, and bespangle her toilet with stardust; but not so with our lady queen, for all this were useless; and had she the strength of iron and brass, the gravity of lead, and the caustic energy of chlorine, she could undertake and accomplish no more valorous deeds. Marvelous is her power, and wonderful are her works, yet all is done by love. So gentle is her reign that her subjects become her willing slaves, and forget their servitude in her sisterly kindness. Her force of character is best illustrated by her influence over her royal husband. His passions are subdued by her affection till he is as gentle as the lamb. Alone, the forest withers in the blast of his fiery breath, and the face of Nature blanches at the touch of his finger. Pacified by her presence, he waters the earth and clothes it with a carpet of green, and bedecks it with flowers more beautiful than the gems that bedeck the diadems of royalty. Solitary, he burns cities to ashes; but, when present, he gratifies her by drowning the conflagration. Without her society, he wrecks the stately ship; yet, encouraged by her smiles, he floats it to the desired haven. His best deeds are done through her inspiration, and often he is helpless without her.

In reference to human society, it has been quaintly said that the husband and wife are one, and that one is the husband; but not so with this royal pair, who govern the United States of the Elements, as she is ever and always the recognized equal of the husband of her choice.

Feeling, as we all do, that "blood tells," when such a marriage occurs in royalty all the kingdom takes interest in the question of perpetuation. When the crisis—the hour of trial, has been reached and passed, and the glad news has been whispered that "all is as well as can be expected"—in short, when an earthly queen has brought forth a man-child, the heir apparent, the prince imperial, the first-born of royalty, the future monarch of the kingdom — sympathy for the tried and triumphant mother is

for the time forgotten, for joy that a man is born into the world, and shouts of triumph commingle with the clang of martial music, and subjects join with one accord in demonstrations of welcome to the new-born king, prisoners are pardoned, crimes are condoned, the guilty go free, new friendships are formed, and all join in jubilee.

In like manner, and more so, was the prince imperial, the heir apparent, the first-born and only son of the royal family of the kingdom of matter, welcomed and announced. The lightnings lit up the royal castle from foundation to turret, the thunders roared to reverberate the glad tidings from west to east, from south to north, causing the swift-winged winds to quiver with delight in their privileges as carriers of the welcome news; the meteors, joyful in their glee, darted across the sky, along the milky way, to tell the comets; the flowers sprang up on every side to embellish and bedeck the scene; the grasses made his swaddling clothes of gayest green; the roses spread o'er him their richest perfume; the violets smiled blue into his still bluer eyes; the peachblows winked at his parting lips, and the peaches copied his blushing cheeks; the dewdrops glittered because he was born; the eyes of the frost crystal sparkled as they watched him with delight; the cascade laughed and the rill sang lullaby because he had come; the waves welcomed him as they rolled, and the river rollicked with delight, as it bore him on its tide; the clouds shaded him from the scorching beams of noonday, and the mists of the morning veiled his eyes from the piercing rays of the rising sun; heaven smiled through the brightness of its firmament, at the day's departure, and held out its rainbow as a token of peace; earth drank in blessings of delight as they were showered upon her, and Nature rejoiced with joy unspeakable, over the arrival of her royal prince.

How sad that we so often see the son inherit the parental estates and titles, with few or none of the parental excellencies! But not so with our hero prince. He has all the good traits of both his most excellent parents. Their works have become his, and he is faithful to his inheritance. A record of his deeds and doings would be but a rehearsal of theirs. In grandeur, and power, and majesty, and skill, and beauty, and goodness, he is their equal and counterpart, a worthy son of worthy parentage.

Proud of his ancestry, heritage, and position? Nay, verily;

for he toils like a slave, with the industry of thrift personified,— robes of royalty laid aside, never idle, and always going about to do good. He often disguises his form and features that he may have increased opportunities for usefulness over those possible for a recognized prince. So humble is he that he almost totally discards his titles. Seldom does he tolerate his real name and title, THE PRINCE IMPERIAL, HYDRIC OXIDE. We read of royalty in disguise sojourning in the cottage of the peasant; but we never find the peasantry less respectful and obsequious after rank and title have been discovered. They revere the royal friend all the more for his social excellence, which they could not have discovered and enjoyed had they known the real rank and title. And will you regard him with less favor when you learn that your old familiar friend, WATER, your companion and playfellow, is none other than His Serene Highness, HYDRIC OXIDE, the Royal Prince of the Material Universe, the first born of Lord Oxygen and his good wife, Lady Hydrogen?

But if his titles and estates were all dropped, and he were only water, as you found him in his disguise? Is he not everywhere, and in all respects, “a thing of beauty and a joy forever?” Think of him as he glitters in the dew-drop, sparkles in the rain, shines in the frost crystal, gambols in the snowflake, glistens in the icicle. See his smile in the cascade, and hear his laughter in the cataract. Listen to his music as he soothes us to rest by

“That melody of Nature,
That subdued, subduing strain,
Which is played upon the shingles
By the patter of the rain.”

He, and he only can revive and refresh the weary wayfarer, as through thirst and heat he has fainted on the sandy desert. The gold of Ophir is then but dross, and the diamond but condensed charcoal; but our plain hero, water, is he who strengthens, refreshes, revives, invigorates, and purifies. His blessings render rich, and add no sorrow. Demons have no delight in him, and never rejoice in his ministrations. He never prepares the murderer for his crime, nor gives strength to the reveler for his midnight debauch. No ghosts of murdered innocents awake from their slumbers to curse the cup he filled for them, or the fountain he provided for their refreshment. Reason is never dethroned through his inspiration; nor are prisons crowded with his victims, while courts of justice are kept busy with their

crimes. His nobility is in his nature. His excellency of character is his own.

And now, my young brethren, if you will each, at leisure, carefully study the nature, formation, distribution, locations, offices, functions, characteristics and properties of *water*—study all these, both in their physical and chemical aspects—you will find a field for mental exercise worthy of your best efforts, and you will reach the conclusion that your plain companion, water, is worthy of his title, His Royal Highness, Hydric Oxide—worthy of all the eulogy I have tried to bestow on him—worthy of all the commendation you can give him.

SECONDARY DENTINE.

BY JOHN G. HARPER, D. D. S.

[Read before the St. Louis Dental Association, February 21, 1882.]

THE pathological changes to which the dental pulp is subjected are many, and of the greatest importance to patient and practitioner. They vary from the reparative to the destructive. The particular pathological change to be considered here is the calcification of this delicate organ. A normal pulp which has never been subjected to sufficient irritation to cause any changes in its form or structure, presents a mass which is soft, vascular and nervous, possessing a function which may, in the future, form dentine similar to that of the tooth, and called secondary dentine.

Salter, page 140, says: "The pathological change consists in the impregnation of the various tissues of the tooth-pulp with calcareous matter, their calcification, in fact, occurring in multitudes of isolated points; and by the multiplication and enlargement of these 'islands of calcification,' involving more and more of the structure of the pulp, and its ultimate conversion, under certain favorable circumstances, into osteo-dentine." * * *

"When the calcification is absolutely complete, * * the whole is perfectly hard as ivory, but, until this final stage, it may be torn up with points of needles, into fibers, which in the fangs are uniformly longitudinal. The axis of the pulp solidifies first, and

most completely, the exterior being more or less soft and pulpy, till the osteo-dentine is fused and confounded with the dentine."

* * * "The color is also modified by the change, according to the degree of calcification that has taken place; from pink and semi-transparent, it becomes white and opaque, and when the calcification is complete, and the islands have fused together, it is yellowish and horny-looking." * * * "The blood vessels are probably the last tissues to calcify, and this is certainly the case with the larger ones, some of which remain permanently patent and functional in the axis of Haversian systems of the matured osteo-dentine."

Secondary Dentine may be divided into three classes, viz.: Dentine of Repair, Dentine Excrescence, and Osteo-Dentine, or Intrinsic Calcification.—(Tomes.)

Dentine of Repair is formed for the protection of the dental pulp from external influences, and we know of no case where any disturbance has been created by its formation.

Dental excrescences are little nodules of secondary dentine formed upon the walls of the pulp chamber of the teeth which have been subject to no other apparent change or lesion.

They seldom give any pain, but sometimes are the cause of neuralgia. As the first form of secondary dentine never gives uneasiness, and the second seldom, we will pass them by and take up more minutely the third class, or Osteo-Dentine, which very often requires the attention of the practitioner of dentistry.

"All the tissues appear to be calcified promiscuously; the vessels, or many of them, are the last affected, still they are early reduced in number, as those which occupy the axis of the dentine — Haversian systems — are far less numerous than those of the original pulp." (Salter, p. 69.) * * * "Osteo dentine has fewer tubes than any other form of dentine, and is usually very transparent." (Salter, p. 70.)

The tubes in osteo-dentine are irregular in direction, which is easily accounted for by referring to the vessels and nerves in a normal pulp.

Calcification of the dental pulp is confined to no particular period of life. It is found in deciduous teeth, and in the permanent teeth of the young, the middle aged, and the aged. From observation, I should conclude that the deciduous teeth are oftener found in this condition than the permanent of any age.

As this condition of the pulp is a pathological one, we will look for the causes.

Irritation no doubt is the cause, and this may be produced in a number of ways, viz.: Caries, which removes a part of the tooth, and exposes the dentine to outside influences which act directly upon the pulp; recession of the gums and alveolar process; abrasion, chemical or mechanical; large metallic fillings and lack of occluding teeth. Tomes, p. 475, says: "In old age the pulp, to some extent, shrivels, and becomes the seat of various degenerative processes. Thus the arteries and veins become indistinguishable, and their coats are kept rigid and distended by irregular calcareous depositions upon them." * * * "These same results may follow upon irritation of the pulp, even in young people."

What are the symptoms by which we may be enabled to diagnose this pathological condition of the dental pulp? The answer is obtained by careful study and close observation of cases. But first let us consult good authority. Tomes (p. 575), in giving the causes of neuralgia, mentions secondary dentine in the pulp-cavity. Neuralgia is, therefore, one symptom; and he says, quoting Dr. Cayley, "It may be here mentioned that the attack, when it is dependent on diseased teeth, almost always comes on in the evening." He also says, "As a general rule, the pain due to osteo-dentine is of gradual development." * * "It is usual for pain due to partial calcification to be distinctly localized, so that the patient is enabled to point out the affected tooth." Sharp, lancinating pains, and sensitiveness to thermal changes, are other symptoms.

Neuralgia is one of the symptoms that has been accepted as belonging to calcification of the dental pulp, and, no doubt, the pain is caused by the nerves becoming irritated by the calcific deposits, or the entangling of the nerves among the nodules of osteo-dentine. In Tomes (p. 571) we find the following, which I will present as collateral evidence of this theory: "A remarkable form of neuralgia has recently been described by Dr. Gross, Professor of Surgery, as occurring in edentulous jaws, or in spaces from whence teeth have been removed. * * * The explanation of the pathology of the affection, offered by Professor Gross, is that the minute nerves, distributed through the wasted alveolar border, have undergone compression from the deposition

of osseous matter in the canals; and some support is lent to this view by the fact that the bone was found to have a dense ivory-like consistence, where cut down upon at the affected spots, and the overlying gum was dense and unusually adherent."

"In each case recorded, Professor Gross, after the failure of other remedies, resorted to the excision of the affected portion of the alveolus, which, in most cases, affected a permanent cure, and in all produced great alleviation of the symptoms." Also we may add an itching sensation, simulating that felt in the knitting of a broken bone. I will offer the following theory to account for the sharp, sudden, lancinating pain felt in a calcified pulp. The symptom will be observed in a case where there has been a dull pain for some time, due to an inflamed condition of the remaining soft part of the pulp; the small blood vessel, the artery or capillary, has become so small, or hardened, that it is with difficulty the blood corpuscle, *or a clot*, can pass through, and it becomes lodged; but finally the *mass suddenly passes through*, and being forced upon the inflamed mass, causes this sharp pain. If the case is allowed to run its course, inflammation of the remaining portion of the pulp results in its death, and the decomposition will cause inflammation of the periosteum, which may result in an abscess, and this finally coming to the surface of the gum, gives vent to the pus, and relief to the patient.

Grouped together, the symptoms are neuralgia, sensitiveness to thermal changes, "slight uneasiness at any time," lancinating pains, and itching. In the last stages, pericementitis and its sequences.

The treatment, when there is no occluding tooth, and it is not desirable, or practical, to insert one, as, for instance, a wisdom tooth, extract.

Should it be desirable to preserve the tooth, cut into the pulp chamber, devitalize, if alive, or remove the decomposed mass, if dead, and treat in the usual manner. Insert occluding teeth, when caused by their lack.

CASES.

Miss ———, between twenty-five and thirty years of age, came to have some teeth filled. Found the left inferior first

molar with a large amalgam filling in crown surface, which had been inserted five or six years before. The tooth had decayed on the distal surface until the pulp was almost exposed; filled with oxy-phosphate as a temporary filling, and had no further trouble. This was in August, 1880. Called again, April 11, 1881; complained of pain in teeth and face on left side, but could not locate in any particular tooth; found temporary filling in good condition. Complained of a feeling of pressure in the tooth under consideration. During the time between May 26, 1881, and July 3, she called several times, and I had separated the tooth from the one in front and on distal surface, but still the feeling of pressure remained; and at one of the visits she said that the day before she felt a sudden, severe pain that was almost enough to make her faint. Proceeded to devitalize the pulp; but still the feeling of pressure remained. Made up my mind that it was a case of exostosis, and extracted, and found nodules of osteodentine in pulp, and roots largely exostosed. The patient had no further trouble.

In Salter (p. 137) is the following: "In one case, a little boy, eight years of age, was suffering extreme pain from an apparently sound temporary canine. Mr. White extracted the tooth and the pain ceased. In the pulp cavity was found a lobulated, calcified mass, filling nearly the whole cavity at the junction of its middle and lower thirds, and pressing the *fasciculi* of nerve fibres out of their course."

In 1875 I had a case of which I made a few notes at the time. The patient, a man, age twenty-eight; the tooth, a first superior molar, left side; had been filled six years before, with amalgam; filling had been out two years; tooth had ached slightly at times, since filling came out. In preparing to refill, the horn of the pulp was exposed. The tooth was medicated, and filled temporarily. In a week, during my absence, the tooth began to ache badly. After a week of suffering, the plug was removed, and the pulp found partially dead. After a few days the dead pulp was removed, and several nodules of calcified matter were found. The pulp in buccal roots was soft and vascular, and that in the palatal, calcified.

In a discussion which followed, Dr. W. H. Eames said that there was an objection to using the term Osteo-Dentine as applied

to this texture by Tomes, as Osteo-Dentine (bone and dentine commingled) was seldom found in human teeth, but quite frequently in those of some animals.

Dr. Harper thought that Tomes used Osteo-Dentine and Intrinsic Calcification synonymously, as this form of Secondary Dentine possessed, in its form, certain characteristics of bone, but not necessarily bone cells.

REPLANTATION.

BY J. E. ROBINSON, D. D. S., COLUMBUS, OHIO.

IN looking over the writings and opinions of different authors expressed on the subject of re-planting teeth, we find them conflicting and unsatisfactory; and we reluctantly come to the conclusion that neither the medical nor dental professions have thoroughly investigated the subject. It is not my desire nor intention, in this brief article, to criticise opinions expressed that seem erroneous to me, but to give a personal and practical experience that may possibly interest some of your readers, which (including those re-planted under my direct observation) consists of ninety one cases, covering a period of nearly five years. Two of these were removed by accident, the rest by extraction. The great majority of these teeth were ulcerated, and badly decayed. They might be classed as hopeless cases, such as usually find their way into our spittoons. The subjects from whose mouths these teeth were removed embrace all classes of people, color, sex, and positions in life. I do not claim all my failures are included in this report. My object is to give facts, and allow the reader to reach his own conclusion. I never had a patient return to have a replanted tooth treated, after once dismissed, or to follow out my instructions to return at stated intervals to see how the case progressed. As a rule, they were soon lost sight of. As far as I know they all did well for a while. In due course of time, six were reported lost, minus roots; nine within the space of a year from time replanted. Of the six, none were from the lower jaw, neither were there any with more than one root. I have never seen ulceration recur, and believe when the operation is thorough, it is effectually cured. I have noticed retrocession of the gum

and alveolus of all replanted teeth. In some it is very marked. I account for the loss of two, owing to the irritability of the patient in not permitting the tooth to be forced to its place and properly ligated. This I consider a very important part of the operation. Another, the patient a grocer, the tooth a central incisor, was lost by biting and jerking heavy wrapping twine before it was firmly attached. Similar circumstances, or slight accidents, may account for the loss of others. I am of the opinion that when we give the care and attention to replanting teeth that the surgeon does to re-setting a limb, and the patient as fully appreciates the necessity of following out the instructions, we will hear no more of the question, "Shall replanting teeth be a recognized operation in dentistry?" Where failures followed, with one exception, there was no peculiar diathesis of the system—mercurial, scrofulous, syphilitic, etc. I have replanted teeth where one or more of these conditions did exist, and have seen them do well. In replanting for different subjects, differing in recuperative power, differing in the same individual at different times to resist deleterious influences, in my opinion, accounts for the lax fibrous attachment, and great difference in the stability of even successful cases, and possibly loss of others. The question with me is just where to draw a line of responsibility between defective manipulation of the operator, slight accidents, or careless indifference on the part of the patient, or where to limit the possibilities of that consummate workmanship of cells in the mysterious operations of repair.

A SET OF TEETH ON RUBBER.

BY A. J. GROSVENOR, D. D. S., TROY, OHIO.

SO MUCH has been written lately about filling teeth, and divorcing the prosthetic from the operative, that I have at times thought that the reason these aspiring souls dislike plate work is because they can not put up a case decently, and know it; or, not caring for it, don't half try.

Rubber has been made the scape-goat of poor work and carelessness; yet a set of teeth on rubber is a blessing to many a poor mortal, if the work is carefully and decently done. The

way I put up a case is not altogether the way I was taught, because I have learned a little, and made some progress, I hope. I like to make artificial teeth, because doing so improves hours that would otherwise be lost, and brings dollars that I would otherwise never have a chance to lose, besides doing some good. I do not like doing it well enough though to sacrifice a good tooth or teeth to make a better plate, as I find a natural tooth of great service to steady a plate; and the more teeth the better, even to the entire exclusion of the plate. Let me recite how I make an upper and lower case:—

The impressions are taken in plaster. After selecting a tray large enough, I put a small roll of soft wax across the back, and take shape of hard palate—this to prevent the plaster from running out and choking the patient and making a deficient impression. This removes the horror, or most disagreeable part of it. I seldom fail to get a good impression the first time.

Take of a saturated solution salt in water about a dessert-spoonful, with enough clear water to make a medium thin batter; beat all the bubbles out, turn into the tray, and put into the mouth; draw the cheeks out—one at a time—to get impression of the muscles and attachments; repeat for frænulum; hold in place until you feel it is hot enough to remove, or depend on picking it under the lip with finger nail. Remove carefully and you will find only a small bubble, if any at all, that can be filled with wax. The lower is taken in wax first, with a flat tray, a little over a quarter-inch wide; this is trimmed outside, and spread to make a cup. Use plaster, as for upper, except possibly a little thinner and same proportion of salt water. Put into the mouth and draw the cheeks from under, as a fold of membrane is liable to lie on the process, just enough to spoil the impression. Have the patient raise the tongue to the roof of the mouth, and then protrude it, to get the impress of the muscles and the floor of the mouth. Remove when hard enough. Obtain plaster casts at once. I use about a tablespoonful of sulphate potassa and water, a saturated solution with enough clear water to make a batter not too thick to pour. The sulphate of potassa prevents the plaster from expanding or warping while hardening. I have the solution colored a little, so I can see where the cast begins and the impression ends. You can remove the casts in ten minutes after filling the impressions. To get the bite, take for

the upper a sheet of wax, and fit it to the cast, building up so it will be a little below the lip, having it but little thicker between the gum and lip than the intended plate. For the lower, I have a bite plate — simply a brittania lower plate — without teeth, but with a spur a little in front of each heel, and one in front, all on the upper side; lay a roll of warm wax on the cast, and press this plate down upon it; trim and put into the mouth; when closed the spurs make their marks. Mark the length of the upper lip on the wax in front, and also the middle of face, giving you a cross in front. Put upper bite on cast; take a strip of writing paper, a quarter of an inch wide and square on one end; put the square end to the mark for length; lay it up over the top of the cast, and run a little wax on to hold it. This represents the upper lip, and you can make your teeth of the right length to a certainty. After continuing the perpendicular mark on the wax attached to both casts to give the median line of the case, fasten both to the articulator, as they were in the mouth, by fitting the spurs into the holes they made when the bite was taken. When the plaster has hardened, lay the bite away for possible future reference. I fasten the air chamber in with a pin in each corner or round angle. Roll out plates of a thickness to suit, and place on the casts, and after smoothing them very nicely, cover them with tin foil. The teeth were selected while the patient was in attendance, and while the plaster was hardening. This is important, as a set too large, or too small, too light, or too dark, are a "give away." I consider color of hair and eyes, complexion, size, etc., place a block between the gum and lip, then stand off and decide it. If I have no set that just suits me, I select color and size separately and make a special order, as I can get a return inside of twenty-four hours. You will find a patient would rather wait a day or two longer and have color and size right than to feel that they were off color and size for years to come; besides you do not want a set of teeth to advertise you that way. Set the front upper blocks so that the end of paper is at festoon of gum, or a little lower, if you choose. This is also the height of crowns of the front lower teeth; examine a few mouths of natural teeth and see if it is not so, as a rule. The teeth should be set as near over the ridge as possible. In making joints a true lathe is required as well as a true wheel; am now using a Lee corrundum wheel, which is the best I have ever used, as it can be

dressed down easily when worn a little too much. I have my wheel to swing in a bath or pan of galvanized iron, with a hand rest lengthwise and one-half the width.

With my outfit I can make an almost imperceptible joint. Fasten each block in place as soon as its part of joint is complete; square top of gum to prevent a possible fracture in cooling of rubber. After all are ground and fastened into place, wax up and smooth the plate, as near what you want it to be when done, as you can; five minutes' particular work here will save fifteen after awhile. After the upper plate is waxed and smoothed to suit me, I cover it with heavy tin foil, letting it lap over the outside of the teeth; carefully rub it down smooth. This is a modification of the Stuck plan. Imbed in the lower part of the flask, crowns of teeth *down*. If the cast is too high or wide, you can trim before running the top in. You will find it quite easy if you have the plaster just thick enough and fill the palate of plate full. The lower plate is treated the same, except the tin foil.

Warm a little before separating; remove all the wax you can while it is warm; boil the rest out; smooth the tin down nicely; tin foil both casts with No. 6, using mucilage. Cut vents in back part for surplus rubber; weigh the wax you have taken out for each case and put in as much rubber as it and the weights together, as the bulk of rubber is nearly twice the weight of the wax. Pack the rubber according to the thickness required at different points; boil well and screw down carefully a little faster in front, so that the surplus can flow out back. After vulcanizing and cooling well, remove from flasks, peel the heavy tin from the upper plate, and remove the air chamber; put plates into a dish of nitric acid a few minutes to eat the tin off. In filing up you find the benefit of the careful waxing, as you have but little to do beyond shaping and polishing. If you have carefully followed directions on the upper plate, you find the surface polished better than you could do it otherwise. The side next to the gums you need not touch unless you find little balls that have penetrated small bubbles in the casts. File the fan-shape almost out where the muscles are, making the upper less liable to be thrown down when the mouth is opened wide, and the lower will not rise up in talking and be so much of an annoyance. You will have a light, comfortable plate, that should not be thicker than the sixteenth of an inch over the palate, and your patient

will learn to talk and eat quicker, and not give the impression of a mouthful of hot mush.

Let us elevate our standard of artificial work instead of allowing or helping to degrade and debase it. If you elevate it, you are benefited; if you neglect it, you degrade yourself.

“That which is worth doing at all is worth doing well.”

DENTAL RECORDS AND NOMENCLATURES.

BY W. C. WARDLAW, M. D., D. D. S., AUGUSTA, GA.

THE dental journals frequently bring to us systems for the easy and rapid recording of operations upon the teeth, devised by ingenious members of the profession. These systems, whilst valuable, and exhibiting considerable ingenuity upon the part of the inventors, are too complex for general adoption—they lack simplicity.

Their number and variety, however, show the existence of a widely felt want. It is very important that all of our operations upon the dental organs should be carefully and systematically recorded. Such a record would prove, in after years, a great satisfaction to the operator, would constantly serve as a protection against mistaken claims of patients, might be of immense importance in a medico-legal point of view, and would be a source from which valuable statistics might be deduced.

But to be thus valuable, such record should be so accurate and complete that the operator may be able himself to rely upon it as a faithful exhibit of his practice. To record many operations and omit some, would destroy the validity of the whole, and thus place the operator at the mercy of his disputants.

I have a system of my own with which I have recorded my practice for fifteen years, and which, I think, possesses the great desideratum—simplicity. I write it very quickly, and read it with the same facility I would the plainest printing. It is readily understood, and with the hope of encouraging some to adopt the practice of recording their operations, who may not have been in the habit of doing so, and to assist those who may have more complicated methods, I am induced to communicate my system.

It is simply to make use of the initial letters of the position, the teeth, and the surfaces of the teeth to be described, to wit :

The sides of the mouth, right and left, are written R. & L.; the jaws, upper and lower, are written U. & L. The teeth are written, incisors (central), I.; lateral incisors, L.; canine, C.; bicuspid, first and second, 1 B., 2 B.; molars, first, second and third, 1 M., 2 M. & 3 M. The surfaces of the teeth are written, anterior approximal, A.; posterior approximal, P.; labial, La.; lingual, Li.; buccal, B.; palatine, Pa.; masticating, M.; anterior masticating, A. M.; posterior masticating, P. M.

Write, first the side, then the jaw, then the tooth, then a dash, and then the tooth, and you will be able to express any surface of any tooth in the mouth without the slightest danger of doubt or confusion.

Take a few examples :

R. U. I. — A. reads right upper central incisor, anterior approximal surface.

L. U. 2 B.—B. reads left upper second bicuspid, buccal surface.

R. U. 3 M. — M. reads right upper third molar, masticating surface.

R. L. C. — Li. read right lower canine, lingual surface.

L. L. L. — La. reads left lower lateral, labial surface.

Thus it will be seen that whilst the same initials may be repeated, coming in their proper order they never make confusion.

The same system of initial letters I extend to the temporary teeth, to extraction, and to mechanical operations.

Societies.

“Wherewith one may edify another.”

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

REPORT OF DISCUSSIONS, BY F. W. SAGE, D. D. S.

WEDNESDAY MORNING, March 1, 1882.

AFTER organizing, a paper was read by J. S. Cassidy, M. D., D. D. S. Subject: “Definite Causes of Dental Caries.” Discussed as follows :

DR. OSMOND: Frequently in cases where there is an alkaline reaction in the mouth, caries extensively prevails. Alkalies, as well as acids, attack the organic structure of the teeth. Caries along the gum-line is due to the use of soap, and to that abomination called sozodont. After the use of iodide of potassium, I have found the gums wasted, as in "Riggs' disease."

DR. CLYDE: Are the effects of this agent constitutional, or merely local?

DR. OSMOND: Local.

DR. H. A. SMITH: The acid theory of decay is the only rational theory. The softened condition of the tooth at the gum-line results from the decomposition of particles of food lodged there. The putrefaction of starchy matter produces lactic acid. We find this condition on the labial surface of the superior incisors; their position preventing the cleansing action of the saliva. The saliva, when tested, even at points near deep-seated cavities of decay, is hardly ever found to be acid. Just at the mouth of Steno's duct, it is sometimes acid. An acid reaction may be given at one point, and an alkaline reaction at another.

DR. OSMOND had a patient with remarkably good teeth. He had inserted several crown fillings. She used Castile soap thrice a day, and cavities formed at gum-line on lower molars. He attributes the decay to the use of the soap. The alkali has an affinity for the animal constituents of the teeth, which are never reproduced, and thus the binding material is removed, leaving the teeth in a chalky condition.

DR. SMITH: I think soap is good occasionally. As regards sozodont, do not think it is as black as painted. Have seen many who have used it, and have known of no harmful results from its use. Always approved of it.

DR. OSMOND: The buccal mucus is acid, and the other secretions alkaline. The former is ropy and the latter limpid, and as either predominates the degree of viscosity will determine the acidity or alkalinity of the saliva.

DR. SMITH: Prepared chalk applied to teeth will often relieve sensitiveness. Have had a case on hand for over five years, of cavities on the anterior aspect of the superior incisors. Treated with chalk; recently filled them permanently. This treatment

is valuable for sensitiveness of the necks of teeth of anaemic persons, and women during lactation.

DR. J. TAFT: The discharge from the margins of diseased gums is acid. It is a cause of caries. It is said that alkalis dissolve animal tissues, producing a chalky appearance of the enamel. Soap is an alkali, saturated with oily acids. How is it possible for this substance to act upon a tooth endowed with vitality? It requires quite a stretch of the imagination to enable us to accept that hypothesis. What is, almost universally, the residuum of decay? It is animal matter; and the tooth substance is removed, not by soap or other alkalis, but by acids. I do not regard soap or other alkalis as at all injurious to teeth. Decay is produced by *nascent* acids. The oxidation of ammonia results in the formation of nitric acid. If evolved in contact with the teeth, it acts upon them. But a large amount of the acid so formed does not come into contact with the teeth—if it did, it is my opinion that it would destroy them entirely in a month's time, in some mouths.

DR. C. M. WRIGHT (late of Switzerland) stated that this question of decay was, in Europe, *the* question of the day. It has been discussed in all portions of Europe, some advocating the chemical theory, and others the "bug" theory of decay. In one meeting the direction of inquiry was as to the influence of locality in promoting decay. In certain parts of Tuscany, where the soil is of volcanic formation, the quality of the inhabitants' teeth is superior. This soil is rich in phosphates. He was not prepared to say that any valuable inference was to be drawn from that fact.

DR. JAY, President: What are the physical characteristics of the people? Are they strong and well developed?

DR. WRIGHT: Yes, but not of unusual stature. In the district where I practiced, the teeth of the people decay rapidly. I think statistics would show that the ratio of decay in the valleys is greater than in the mountainous regions.

DR. J. TAFT: The subject possesses great interest in this respect: that in the progress of knowledge, the methods of treatment of dental decay are being modified. There is a recognition of the requirements of general, constitutional treatment. There

is at this day a greater disposition to reach the active causes of decay and ward them off. So much reliance is not now placed on the mere filling of teeth. The operation of filling is now better done than ever before, and is more efficacious. Still, that is not the great reliance to-day. The inquiry is, what can I do to *prevent* decay? That is the gist of much of our discussions in societies where this subject is brought up. The effort is not by local treatment only, to prevent the pernicious influence of destructive agents. These agents are controlled by no other means than such as are directed to systemic treatment. The correction of vitiated conditions of the oral secretions claims a large share of consideration. In regard to the operation of these decay-producing agents there is much to be learned, but our knowledge has been already largely increased. It is now very well understood that much of the decay is produced by *nascent* acids, and not, ordinarily, by acids taken into the mouth. It is true that acids, when taken into the mouth, may operate as predisposing agents of decay. [Dr. Taft next briefly reviewed Dr. Watt's theory of decay; then resumed his line of original thought, as follows]: The influence of mucus is manifested upon the cervical borders of the teeth. Where the cementum does not overlap the enamel, the surface is often hyper-sensitive. Let the gum then become irritated at its margin, and the exudation from the mucous follicles becomes vitiated, and acid is the product. Sometimes the lime portions of the tooth are removed, and the cartilaginous part is left, like a leathery substance. What is the treatment? Stimulate the margin with tannin, or chloride of zinc, etc., or, frequently it is well to pare off the free margin of the gum; all this is well, but it is not enough. Antacid applications are not all that is required. The trouble may recur in an aggravated form. The tooth may, and probably will decay around any filling inserted at this point unless constitutional treatment be called into requisition.

DR. WRIGHT: The Swiss peasants, who dwell in the valleys, are toothless in middle life. Those living on the mountains have good teeth.

DR. TAFT: The best specimens of mankind are not produced in the valleys. I have noticed that patients from the "Blue-grass" region of Kentucky have unusually fine dentures. It is

said that the bones of animals bred in that region are remarkably strong and perfect—better than the average.

DR. SMITH, Kentucky, said he had observed that the teeth of those living in the elevated regions of Kentucky were superior. He thought the habits of the people accounted largely for such differences as have been observed. Refined, intelligent people, who pay attention to hygienic rules, have the best teeth. The blue-grass region is a limestone district. The people, however, drink cistern water and Bourbon whisky (laughter). Cannot say whether that has anything to do with the production of a superabundance of phosphates. The general organism of the people of Kentucky is remarked the world over. Strangers seeing a large, strong man, will say, "He is from Kentucky."

DR. H. A. SMITH: Thinks that the more elevated regions are probably richer in phosphates. If people lived on animals raised in the higher altitudes, there would be a production of better tooth-material. Dr. Leslie raised a point worthy of consideration. We talk about the acid reactions of the fluids of the mouth as if the entire fluids were acid alike. The sense of taste detects the presence of acids, generally speaking. And yet these decay-producing acids in the mouth are not thus easily recognized. The fact that the acid is developed instantaneously accounts for its not being tasted. It cannot then be detected, although it may respond to the usual tests.

DR. LESLIE: That is not exactly an explanation. It appears to me that if there is any acid in the mouth, its presence should be made apparent to my tongue. I do not see upon what principle you decide that the acid thus formed will proceed immediately to the tooth, and fasten upon it. I hold that the mouth is so sensitive to the presence of acids that they could not be present at all without your knowing it. My position remains unanswered. I ask Dr. Taft how nitric acid, hydrochloric, and lactic acid are produced? What are the agents that operate to remove the decayed matter of the tooth, other than the agents which produce the decay, primarily? Where do you find that they come from, and how are they formed?

DR. TAFT: They are formed just as acids are formed under any putrefactive, or suppurative processes, in any part of the system. Under favorable circumstances the molecules of the differ-

ent chemical compounds are separated and reunited to form nitric acid, lactic acid, etc. Enough is not formed to be perceptible to the taste. Nobody tastes the acid given off by the mucous follicles when irritated, yet the acid is unquestionably produced, oftentimes. The law of affinities comes into operation; the molecules come into contact with particles of dentine and seize upon them. The acid being *nascent* is more active than free acid. This is a recognized principle of chemistry.

DR. LESLIE: You say the *nascent* acid has an energy not common to free(?) acid?

DR. TAFT: Exactly so.

DR. KEMPTON: Dr. Leslie has expressed incredulity about the acids going to the tooth, and fastening upon it. We come to consider now the source and origin of this acid. It comes from the decomposition of particles of food which lodge between the teeth or in the fissures. Thus the acid is developed immediately in contact with the teeth. Now acid, just as it is liberated from a compound, is more active than it would be if allowed to remain a while. That is *nascent* acid.

DR. CLAYTON: If the operation of acids is directed to the removal of already devitalized dentine, as stated, how do you account for the fact of this devitalized dentine's being found only at certain points? I am convinced that lateral motion of teeth, at points of contact, often produces decay. Wherever we can render teeth absolutely self-cleansing they will not decay. I cut out every sign of a fissure. I know that I have been severely criticised for so doing, but I have the experience of able men in the profession to justify my course, and members of this year's class of the Ohio Dental College who have seen specimens I have here exhibited, confirm my assertion that such a course is often necessary. Experiments in this direction on extracted teeth establish no principles, because in such experiments we have not the advantage or *dis*-advantage of vital conditions. I do not believe that acids remove the devitalized dentine; if so, why is it that fissures decay?

DR. J. E. CRAVENS: I confess that I know less about chemistry than many of you gentlemen in the dental colleges. Put that down. (Laughter). I believe that Dr. Geo. Watt is right in

his theory as to the active agents of decay. I believe Dr. Watt was always, when in his prime and vigor of manhood, *always* right. (Applause). I once heard him say that he had been accused of being crazy for saying that decay of the teeth was in its nature, chemical. I think it is a matter of satisfaction to us all, to know that the dental world has come to acknowledge that Dr. Watt was right in this. I listened very carefully to Dr. Cassidy's paper to see if he agreed with Dr. Watt. I discovered that the views of the two were perfectly harmonious. He says that the condition of the saliva is acid—generally—as also Dr. Watt says. He says it may be decidedly alkaline, also. This is equally true. I can take potassium-chloride into my mouth, and in fifteen or twenty minutes I can taste it in the buccal secretions. Supposing a test for alkali should be made then, of course the reaction would be alkaline. I could fairly *talk* potash. (Laughter.) Now all this time there might be a particle of food impacted between my teeth, which, undergoing decomposition, would liberate nascent acid, a single molecule of which would, as Dr. Watt has stated, “get in its work” on a particle of dentine for which it has an affinity, in spite of the alkaline condition of the mouth. Speaking of the characteristics of the three acids which operate in caries, Dr. Cravens said that these attacks upon the structure of the teeth present peculiar and distinctive features. Brown decay (hydrochloric acid) goes straight for the pulp. The opening is often no larger than a pin-head. This variety of decay follows the lines of the sections of tubules in which it originates. The white decay (nitric acid) destroys all tissues alike leaving nothing unaffected by its ravages. The black decay (sulphuric acid) is more superficial. It covers a large tract which is comparatively slightly excavated at its periphery; is deeper towards the center where there is a small depression, burrowing in very much like a corn on a toe. Dr. Cravens, speaking of decay at the cervical portion of teeth, said that contrary to the opinion of some one with whom he had conversed on the subject, he was inclined to think that this occurs more frequently on the ten lower, anterior teeth, than on the corresponding teeth of the upper set. Adjourned.

The evening session was devoted to an exhibition by Dr. J. Taft, of sections of teeth, etc., thrown upon canvas by the aid of

a Drummond light. No report of it is attempted, as none can do it justice.

THURSDAY MORNING.

Paper by Dr. Chappel on "The Dental Pulp; its Pathology and Treatment."

DR. CHAPPEL, New Albany, Ind., said that he sometimes formed an opinion as to the advisability of attempting to cap a pulp, or not, by noticing the condition of the cuticle of the patient's hands. If it was broken and abraded, or if there were any cuts which did not have the appearance of healing kindly, he hesitated to treat and cap. [These observations were supplementary to the paper read.]

DR. BERRY commended the paper read. He was gratified more than he could express by the spirit of enterprise and earnest, thoughtful research which marked the efforts of the young men of the profession to develop the science of dentistry and add to its literature that which may be expected to enlighten those who are to follow after us.

DR. BROPHY, Chicago: Much has been said about constitutional treatment to pave the way to success in our efforts to save pulps. There has not been enough specific teaching in our colleges on this subject. Pathology of the dental pulp should receive more definite attention in our colleges as well as in medical schools.

DR. TALBOT, Chicago: There has been too much use of escharotics in treating pulps. A five per cent. solution of creosote or carbolic acid is a good application. Oil of cloves is perhaps better. For plethoric persons a cathartic, to reduce the flow of blood (?) [to reduce the supply of serum.—*Rep.*] is frequently requisite. The statement that carbolic acid is a disinfectant is incorrect. It is antiseptic. To show that it does not disinfect, pass a little carbolic acid through a jar of sulphuretted hydrogen. The odor of the gas will be as strong as ever a month later.

DR. CHAPPEL: Carbolic acid, while it has not the action of chlorine, destroys organisms, and has a wonderful effect in preventing septic conditions. It is doubtful whether it will purify where there is putrescence.

DR. BROPHY stated, in a few words, carbolic acid will prevent decomposition of animal matter, while it will not prevent the odor.

DR. TAFT: While that statement is correct in regard to many things, yet there are substances offensive in character that will be afterwards arrested by carbolic acid. Disinfecting is simply breaking up the offensive condition. Sulphuretted hydrogen is very offensive; separate the hydrogen from the sulphur and neither is offensive. Anything that has an affinity that will separate these two is a disinfectant. There is hardly anything, excepting chlorine, that is a general disinfectant. Oxygen, when liberated, becomes a very active disinfectant. Dr. Taft spoke of eucalyptus oil as a valuable adjunct to the dental pharmacopœia. It is a strong disinfectant and antiseptic, preferable in many respects to creosote or carbolic acid. He employs it in treating pulps; also in cleansing roots.

DR. SAGE, Cincinnati: The strong, sweetish taste and odor of this oil are offensive to some persons. The dispensaries do not unequivocally credit it with the properties and effective qualities claimed for it by some. I have effected cures of abscesses by its use.

DR. CHAPPEL, in reply to an inquiry as to the use of iodine and tinct. aconite applied to exposed pulps, explained that the tinct. iodine should be diluted somewhat. We use the aconite for the purpose of paralyzing the parts which are in the natural healthy performance of their function. The iodine stimulates the engorged capillaries and induces resolution.

DR. TAFT: Treatment, in the case of a pulp exposed through the awkwardness of the operator—in the case of a pulp which has not ached—is superfluous. But a pulp which has been for some time exposed, even though not aching, often requires treatment. There may be a secretion of acrid fluids, or even gaseous formations may exist. Wash out with a syringe carrying tepid water, and then disinfect.

DR. VAN ANTWERP: Three or four years ago, when studying the condition of exposed pulps, I accidentally discovered a digestive principle in paw-paw leaves. I tried the rind first, but found the leaves much better. Was successful in the use of the leaves

in two cases. Have not tried it enough to pronounce decidedly on its superiority over pepsin. Dr. Sparrock, of Gaudaloupe, West Indies, says that the natives use it to make beef tender. I have been unable to get the active principle in an alcoholic solution.

DR. SAGE: I have frequently digested the sloughing surface of an exposed pulp with pepsin and a weak solution of hydrochloric acid. The pulps so treated, when finally capped, have never given trouble, while in several instances where this precaution was not adopted, the teeth have given trouble. I consider it worth while, even though it be considered doubtful whether the majority of capped pulps ultimately survive, to attempt the operation, for two reasons: First, the pain and discomfort attending extirpation is saved the patient; second, the trouble and work of extirpating and filling the roots afterwards is spared the dentist. Of course the texture and the position of the tooth are to be considered, taking into account the danger of absorption of putrescent matter, and the consequent discoloration. But many pulps which can be demonstrated to be dead, without removing the filling, cause only slight discoloration, and in many cases no discomfort. At all events the evil of discoloration, more or less marked, is not to be avoided by extirpating, and filling the roots.

DR. CRAVENS: I do not believe I know anything about exposed pulps. [Laughter.] I do not believe that actual exposure of the pulp is due to any pathological condition, in more than five per cent. of cases. In the remaining ninety-five per cent. of cases, I do not believe a full exposure of the pulp is any more due to such conditions than I believe a man's being found dead on the sidewalk after jumping out of a fourth-story window is due to such conditions. The exposure is the result of violence. I think the *object* of treatment should be considered before the speaker proceeds to describe his method. Here we are brought face to face with a grave error of our profession. Whenever we find a part of the pulp destroyed and a formation of pus, I infer that there has existed a condition of exalted inflammation of that pulp. In such cases I do not believe it is practicable to save the pulp, either by the surgical operation of cutting off the diseased part, or by digesting it away. It may be saved for six months or more. He has heard gentlemen assert

that they save ninety or ninety-five per cent. of their cases. Without wishing to appear to impugn their veracity, he would say that he thinks proof-positive of these statements is, in the nature of the case, lacking. Only in cases where there has been no serious inflammation does he attempt to cap the pulp.

Returning to the question of the manner of exposure of the pulp, Dr. Cravens stated that a combination of brown and white decay in a tooth often leaves a thick, tough, *cheese-like rind*, which may be removed with a tooth-pick, or even by using a stiff tooth-brush. The splinters from a stick used by snuff-takers might do the same thing. Fifty per cent. of cases of actual exposure are due to such instrumentalities, and nearly another fifty per cent. are due to carelessness in using the excavator. He attaches less importance to the material used for capping than to manipulation. The chief object is to avoid impinging upon the nerve. This delicate operation, to be successfully performed, would seem to require that exactly enough space, no more and no less, than will permit of the pulp's expanding with every impulse given from the heart, should be provided.

DR. CLYDE, Kentucky: Supposing we find the pulp in a state of congestion, and it is afterwards reduced to a normal condition. Dr. Cravens' idea is that unless there be an exudation of lymph there would be an empty space under the capping. I think that if there were no exudation, the expansion of the pulp would fill the space just as the mucous tissues fill an air chamber of a plate.

DR. CRAVENS: The illustration is not apt, for the reason that it describes an abnormal phenomenon.

DR. CLYDE: Of course I do not advocate capping without preliminary treatment in the case of a congested pulp.

DR. FRANK HUNTER said that he stopped capping congested and inflamed pulps, several years ago. Where there has been a considerable exposure, in his opinion capping seldom suffices to save the pulp alive. Even when there is no exposure, if the tooth has ached for some time, he removes the thin layer of decomposed dentine and applies arsenic. From his observation, not only of his own cases but also of those of other dentists, he concludes that where the congestion has been very considerable, it is highly improbable that a healthy condition can be restored. He doubts.

at all events, whether a capping can, in many instances, be satisfactorily made.

DR. CLAYTON said that it was important to avoid removing the thin layer of dentine over the pulp, for the reason that the odontoblasts might be thus destroyed, and the possibility of secondary dentine formation thereby precluded. If litmus paper reveals an acid reaction, he would apply an alkaline remedy, sealing it up for a few days. Afterwards, if all is favorable, cap with dry oxide of zinc, or oxy-phosphate.

DR. CHAPPEL: The remarks made by the speakers apply to doubtful cases of pulp exposure. The instances in which we find congestion of the pulp, and effusion of serum, and indications of the migration of white corpuscles, degenerating into pus, require of course other means for relief. We know that where there is a definite form of abscess, if there is not proper relief, it will terminate in pyæmia or septicæmia of the pulp. Whenever there has been effusion it must be relieved. We know that the molecular changes which may be brought about in a pulp—whether by chemical agencies or otherwise—sometimes beget irritation, without any symptoms of pain or swelling, and yet a condition of compression of the pulp exists. The walls will not yield and expand to accommodate the engorged pulp. Constitutional tendencies may be, in certain conditions, exciting causes of pulp irritation, or they may be only predisposing causes. It seems to me there is a recognizable distinction between such cases as are susceptible to treatment and such as are not. We frequently find pulps that are suffering from innervation, the slightest irritation will produce neural pains. These may be or may *not* be susceptible to palliative treatment. Trial only will enable us to determine that question.

DR. FRENCH: It has always been considered by those men of the profession with whom I have been brought in contact bad practice to use arsenic on exposed pulps. I consider the using of arsenic very much as I would the pushing of a man who had fallen into the water and was in danger of drowning, further in, rather than assisting him out. I would try by every effort, even at the risk of failure, to save the pulp. The action of arsenic upon the tissues surrounding the tooth is far from being beneficial; the discoloration is evident to all careful observers. I have a tooth so

destroyed years ago. It has been observed that we make a mistake in accepting the suggestions of theorists, who are often *mere* theorists. If we accept that idea we will never progress. I would rather fail by not using arsenic than by using it.

DR. BERRY said that in many instances he believed the use of arsenic was not only justifiable, but commendable. There are cases where extraction, even if desired, is in the peculiar nature of the case, or owing to attending circumstances, interdicted. What are you going to do about it? Let your patient continue to suffer? He is not in sympathy with the wholesale denunciations of arsenic which have been made by some.

DR. CRAVENS: I am afraid that Dr. French will think that I am entirely devoid of the milk of human kindness. Now to assure him that I am not a bad man, I will explain: If I found Dr. French in deep water, and I knew that no human power could save him, I do not think I should attempt the part of a humanitarian — I would chuck him in deeper (laughter). I would do all in my power to end his sufferings as speedily as possible. Now I want to call attention to a condition I have observed in a number of cases. What appears to be an exposed pulp presents itself; by puncturing it copious hemorrhage is produced; there is extreme sensitiveness — more than we should expect to find in dentine. I have applied arsenic, creosote, filled the cavity with gutta-percha, so as to exert slight pressure, and after the lapse of twenty-four hours the cavity has been found entirely empty. For lack of a more definite term, I call that a *hemorrhoidal* condition. My theory to explain that, is that the pulp having died, and having been entirely removed through the apical foramen, an expansion of a vessel beyond the apex of the root fills the canal, simulating a living pulp.

DRS. BROPHY, Talbot and others, followed the last named speaker with blackboard illustrations of methods of filling teeth with non-cohesive foil.

Editor of the Ohio State Journal of Dental Science:—

THE annual meeting of the Chicago Dental Society was held the evening of April 4th, and the following were elected to serve as officers for the ensuing year: President, E. S. Talbot; 1st

Vice-President, Frank H. Gardiner; 2d Vice-President, A. W. Hoyt; Recording Secretary, H. F. Kimball; Corresponding Secretary, A. W. Harlan; Treasurer, E. D. Swain; Librarian, James G. Reid; Board of Directors, George H. Cushing, J. N. Crouse, Edmund Noyes.

Respectfully yours,

A. W. HARLAN,
Corresponding Secretary.

ILLINOIS STATE DENTAL SOCIETY.

The eighteenth annual meeting of "The Illinois State Dental Society" will be held at Quincy on the second Tuesday (9th) of May, and will continue four days. The dentists of Illinois and the neighboring States are cordially invited to be present.

EDMUND NOYES, *Secretary.*

UNIVERSITY OF MICHIGAN.

THE Seventh Annual Commencement of the College of Dental Surgery of the University of Michigan was held Wednesday, March 29, 1882.

The order of exercises were as follows: Music, Prayer, Music, Conferring Degrees, Music, Address to the Class by George Watt, M. D., D. D. S., etc., etc.

The names of the graduates are as follows:

George Post Ashton, Warrensburgh, Mo.; Wellington Brainard Banks, Detroit; Frederick James Barnes, Delaware, O.; Fred Thompson Bell, Aurora, Ill.; James Christopher Bush, Hardinsburgh, Ky.; Wesley John Campbell, Malone, N. Y.; Jennie Marietta Clark, Milwaukee, Wis.; Charles Elbert Cleveland, Chicago, Ill.; Edward Carroll Condict, Dover, N. J.; Herbert Lee Davis, Fostoria, O.; Bernard John DeVries, Holland; Charles Albert Eckert, Trenton, O.; Margaret Humphreys, Xenia, O.; Henry Atherton Knight, Minneapolis, Minn.; Joseph Bonnell Little, Fond du Lac, Wis.; Harry Mitchell Loughridge, Mansfield, O.; Julien Wellington Lyon, Akron, O.; Hattie Lovina Martindale, Grand Rapids; Kate Cameron Moody, Mendota, Ill.; Frank Scott Morrison, Martin's Ferry, O.; Edward Morgan Nutting, Randolph, N. Y.; Romeyn Melvin Paine, Springport; Charles

Francis Porter, Bay City; William Henry Priestman, Neponset, Ill.; Joseph Lee Rose, Mobile, Ala.; Walter Irving Southerton, Bay City; Edmund Pease Stiles, Austin, Tex.; Wilber Andrew Studley, Springville, N. Y.; Robley Owen Sturgeon, Salem, O.; Harry Bryant Tileston, Evansville, Ind.; William A. B. Treadway, Norwich, Conn.; James Marrior Welch, Baltimore, Md.

AMERICAN MEDICAL ASSOCIATION.

CHICAGO, ILL., April 8, 1882.

Editor of the Ohio State Journal of Dental Science:—

By inserting the following notice in your journal you will greatly oblige many members of our profession:

The Thirty-third Annual Meeting of the American Medical Association will be held at St. Paul, Minnesota, commencing June 6th, and lasting four days. A section on dentistry was formed in this Association at its last meeting, and medically educated dentists were recognized as specialists in medical science. All medical men of the regular school, practicing the specialty of dental surgery, are most cordially invited to procure credentials from their local medical societies, and join us at St. Paul. All railroads furnish reduced rates to all members wishing to attend.

"A member desiring to read a paper before any section should forward the paper, or its title and length (not to exceed twenty minutes in reading), to the Chairman of the Committee of Arrangements, at least one month before the meeting."—*By-Laws*.

TRUMAN W. BROPHY,
Sec. Section on Dentistry, Am. Med. Association.

Editor's Specials.

"Write the Vision and make it plain."

VERY COMMENDABLE.

In this number is an article on Secondary Dentine from the pen of Dr. John G. Harper, of St. Louis. When the paper was read before the society, the doctor illustrated it by a very large

assortment of carefully prepared specimens, showing exactly what is described. It is impracticable to illustrate these satisfactorily by wood cuts; but the doctor has promised us that he will exhibit the specimens at the meetings of other societies which he may attend. To see this collection would pay any dentist well for the time spent in attending a meeting. We hope many will make it a point to see the collection; and many others would do well to follow the good example of saving specimens for illustration.

ILLINOIS STATE DENTAL SOCIETY.

WE have given the Transactions of this society for 1881 as high commendation as we well could give anything of the kind, in that we have made such heavy drafts on its pages. The articles we have copied are all good; and those we have omitted are by no means bad, but we did not wish to have all Illinois. One of the omitted articles was so much like other matters used from other sources, that we felt the subject treated by it had already received its share of attention. If a society does not wish its papers so generally appropriated, it must not have them so well gotten up. It is seldom that a society meeting can show so much evidence of good brain work.

SYMPATHY.

WILL the ONE of the *Dental Jairus* accept ours? It is cordially offered. Thirty-eight days of rheumatism, and yet only occasionally up to an angle of seventy! "Alas for thee, my brother!" We've been there.

But be brave, good brother. Laugh at it. Make sport of yourself, if, like ourselves, you are large enough to be ridiculous. Tell your friends you have a room for rent—a rheum at Ism, and that ism is a sober place, and quiet in view of its sighs.

But now your "nine" come handy. Let me congratulate you. Ring them into service, especially your K-nine. Get absolution from your "Pope"—an "indulgence" in the shape of a good rest. Violate no law of health; but, with a cudgel, violate your "Ward-law," unless he helps you. Submit all doubtful contributions to your "*Tru-man*." Let the "*Immortal J. N.*" assume

"the pressure" which would otherwise rest on you. Tell your ninth man that he'll be professionally "Morgan"-ized if he fails in your hour of distress. Let "W. C." and "Prof. John B.," if only they stand up to their duty.

But, dear friend, don't think we are indifferent to your suffering because we thus write. Though never free from physical pain, we pity all who suffer, especially those not accustomed to it.

And now, brethren, my "nine" friends, the JOURNAL will delight to see you relieve your suffering chief of all possible labor and care. The JOURNAL is one of your warmest friends; but it wants you to do that.

"TIME FLIES!"

"OR words to that effect," and that is the reason he has reached the fiftieth anniversary of Doctor J. A. Robinson's marriage—has actually celebrated "Uncle Jerry's" golden wedding. "In good old colony times, when we were under a king," and for several years afterwards, Father Time went afoot, with his scythe in one hand and his hour-glass in the other, and, according to the very accurate portrait of him in the "John Rogers Primer," he was a fine old gentleman, with benign countenance, and abundant leisure. Now, he carries a gold stem-winder, and rides down his harvests on a McCormick reaper, and so things happen faster than they did. Then Uncle Jerry would have been care-worn, bent and wrinkled before he could have reached his golden wedding. Now he reaches it, or rather it reached him, while he is full of life, actively practicing his profession, and doing the work of two or three men besides.

Verily, Dr. R. is a phenomenon worthy of study. In mind and body he appears as active as men of forty. His professional tact, his conversational powers, his use of the pen, all would indicate the prime of manhood. Perhaps temperance, cheerfulness, industry, regular habits, piety, a happy marriage—pshaw! why try to explain? He's just "Uncle Jerry," and that's the explanation.

Mrs. Adams, of Massachusetts, the only surviving witness of the marriage of fifty years ago, was present, and if as sprightly

and cheerful as when we met her a few days before, she doubtless contributed much to the pleasure of the meeting. We naturally inquire, when shall these three meet again?

It is so seldom that such events occur in the social lives of our brethren, that we take pleasure in alluding to this one, and especially as Dr. R. has been to us a special friend since first we met, in May, 1854.

EXCHANGE STANDPOINTS.

It is said that two knights quarreled about the color of a suspended shield. After they had fought to exhaustion, and were lying helpless, a peace-maker carried each to the location which had been occupied by the other. They differed in opinion now as widely as ever, but each convinced he had been wrong, overwhelmed the other with profuse apologies. We are reminded of this incident by the published expressions of British and American dentists who attended the International Medical Congress, and have retired to criticise each other.

The British Journal of Dental Science for February, 1882, says editorially, "What strikes us most in studying the 'Transactions of our special section, is the great excellence of the English, French and German papers, as compared with the American. The former are remarkable for a much truer grasp of the seriousness of scientific research; they are the productions, to use a detestable phrase, of earnest workers." On the other hand, at a meeting of the First District Dental Society, of New York, we are told, Dr. Atkinson said, "It afforded him great pleasure to stand before them that night." Farther on, he said of his attendance at the International Congress: "To men who went there with the expectation of being advanced scientifically, if all their experience was the same as his was, that matter would have to turn up under the head of disappointment. * * * The best portion of their best men would not compare with American fourth rate men. Their best finishings were bad; they were like the old finishings, and how so intelligent a body as the English public could put up with them was a marvel to him. They were as much behind as the Americans were thirty years ago." And Dr. E. Parmly Brown is represented as saying, "They were not

up to the mark in operative dentistry. They were not equal to the American dentists. They were twenty-five years behind the age in operative dentistry."

Is it not barely possible that the views on both sides of the water are more or less colored by prejudice? We think it quite probable that the comparisons made by Professor J. Taft, at the meeting of the Ohio State Dental Society, last December, are more nearly correct. The reader can find these in the report of discussions, in the April number of *THE JOURNAL*.

It is a proverb that "comparisons are odious." It is a difficult task to make them without doing injustice, and without hurting feelings. This is always to be regretted. Prof. Taft will remember that one of our classmates made a sensation in our literary society by moving that his own brother be expelled for making remarks calculated to hurt feelings, giving as a reason that he wanted the members to "recognize the fact that a man's feelings are the tenderest part of him." At any rate we shall be very sorry if the meeting of the Congress results in bitter feelings engendered by harsh criticisms.

I, TOO!

PERSONAL magnetism, human electricity — something seems to cause simultaneous thought and investigation on the part of individual thinkers. The composition of water was discovered by almost simultaneous experiments by Watt, Cavendish, and Lavoisier. And all are familiar with the disputes as to the discovery of anæsthesia. Our readers remember that we laid before them in the *JOURNAL* last year some extracts from a private letter from Dr. Wm. Van Antwerp, of Kentucky, in reference to the active principles of the common paw-paw, a digester of dead pulp matter, of animal tissue in general. We had never heard a hint in this direction, and felt highly interested. Dr. Sparrock speaks of its common use by the inhabitants of Guadaloupe to make beef tender, but he gives Dr. V. full credit for its introduction into dental therapeutics. The *British Journal of Dental Science*, for February, 1882, has the following: "Professor Wurtz has recently been experimenting on a curious vegetable substance, named papaine, obtained from carica papaya. It is said to possess properties very analogous to those of pepsin, being

able to liquify two thousand times its weight of moist fibrin, changing it to peptone; there is, therefore, a possibility that it may some day find an application as a pulp dressing."

Thus it would seem that the demands of humanity ripen, and in the nature of things must be respected. And so we see attention turned to this agent by parties at long distances from each other, and without the slightest communication with each other.

Dr. Van Antwerp has said recently that he did not get good results from the use of an alcoholic tincture of the leaves. The active principle may be decomposed by the action of alcohol, or the tissue may be rendered less soluble by the contact of alcohol, or the leaves may have been damaged in drying. Still, we think it quite probable that a fluid extract will give better results than a tincture. It is quite probable this agent will be found valuable in general surgery as an application to indolent or sloughing ulcers, as well as to gangrenous spots, in connection with anti-septics. Don't let another paw-paw season pass without giving it a fair trial.

STATING IT MILDLY.

IN the *British Journal of Dental Science* for February, 1882, is found an editorial paragraph as follows: "Let us here say, once for all, that the long theorizings on molecular change, etc., with which Dr. Atkinson and his school take up so much of the time of the American Dental Societies, and the space in the American Dental Journals, are about as futile as the disquisitions of the Schoolmen. We may be dense and stupid, but we can not for the life of us see what bearing a passage like the following can have on the advancement of dental or any other science. It is from an article on 'Histology,' by Dr. W. H. Atkinson, published in the last number of '*Johnson's Dental Miscellany.*' After speaking of the three embryonal sheets as the 'veritable producers of the lay out of the animal body,' he continues: 'In a vague and massive sense they are just this thing, but we must go further than that, deeper and finer, to enable us to grasp the steps of typal dominion in alternations of generations of prime ordeal (*sic*) preparatory bodies, through which steps all the organs have to finally pass, at the behest of type, to constitute a complete system of functioning organism.' That kind of talk,

when presented to Section XII. of Congress, was, as Dr. Atkinson complains, 'smoothly ignored,' if not something more."

The reader will notice that the *British Journal* speaks of Dr. A. "and his school taking up so much time and space;" but would he not think more kindly of all concerned, by bearing in mind that this action is in full accord with the aim and object of the said school and its illustrious founder; for we suppose the editor refers to the School of Odontological Gallimatia, which appears to have been established to give its members opportunity to try who can use the greatest number of outlandish and obsolete words, without hesitancy, regardless of the subject under consideration, and so arrange them that they convey no idea or thought whatever, on the subject on hand, or any other.

The *British Journal* speaks of such talk being "smoothly ignored" by Section XII. of the Congress. So we suppose our good British brothers got a taste, though but a mild one, of the stuff so long crammed into us. All but members of the special "School" have been disgusted with it all these years; but it is possible that the terms of admission in this school require all its members to sit as if listening with all the five senses. While thus sitting, our brethren from abroad would think, on seeing them, that they were by some mysterious mental process understanding all that is uttered. But no mistake could be wider. They are supposed to be watching for an intelligible sentence as a basis for a charge against the speaker; for it is said that a single expression that can be understood renders him liable to expulsion; but we are told that no member has yet received the full penalty. It was feared that the founder of the "School" would be taken up on the sentence quoted; but as the *British Journal* has come to his relief by intimating that not an idea or thought is conveyed by it, it is hoped that all further proceedings will be "smoothly ignored."

But after all, it pains us to thus write of an old friend. For when Dr. A. is himself, and is content to give expression to his own ordinary thoughts, he often advances the good cause, if not by clear and systematic teaching, by throwing out a sparkling hint that is taken up and reduced to practical shape by other thinkers. In this way he has done much good. In claiming to write and speak as the angels dictate, or as the "spirits give him utterance," he has done great harm, having been sometimes

instrumental in making our dental societies a laughing stock. When by the fireside, or in the small local society, he gives the views of William H. Atkinson, it is a pleasure to listen to him. But in the excitement of a large meeting, especially when lady listeners are present, and he announces that the thoughts he utters are not his own, but that he speaks "from the fount of inspiration which wells up within him," we may look for a nonsensical harangue worthy of a madhouse. And if tolerated, he will continue his jumble of words without thoughts, to the point of physical exhaustion, at least on the part of his hearers. These are solemn, serious facts; and if any one regrets the condition which makes them possible more than we do, we are ready to abandon our own feelings and adopt his. And it is this feeling of friendship and sympathy that makes it possible for us year after year to be visited with these inflictions. Accordingly another such visitation is provided for us at the next meeting of the American Dental Association, for he is still chairman of the section on Dental Nomenclature and Terminology, and we shall probably be revisited by the vaporings of S. P. A., which have not the most remote bearing on the subject proposed, if they have any meaning whatever, which is quite doubtful. There is nothing personal in this, for Dr. A. is discussed as a committee man, and as a delegate to the International Medical Congress. And these vaporings will answer his purpose as well as anything he can say; for he never finds it necessary to have his remarks coincide with his subject. If, in some way, the Association can get rid of "Alwato" and company at its next meeting, it will not be so much laughed at by men of science.

MISREPRESENTATION OR MISUNDERSTANDING?

WHEN relying wholly on memory, a speaker may misrepresent without the slightest intention of doing so, and all the more likely is he to do so, if he has had conversation or correspondence with several parties in reference to the subject under consideration. A case in point has just come to our observation:

At the meeting of the California State Dental Association, in June, 1881, the Transactions represent Dr. Robinson as saying, "In a private correspondence with the editor of the OHIO STATE

JOURNAL, he said that animals did appropriate directly from the mineral world. He had taken a number of hens, to some he had given lime and withheld it from others, and the hens that had the lime had the thickest shells on their eggs. When I asked him where he got the lime from, he said from calcined oyster shells, so he could not answer the question at all but confirmed rather the other side."

That private correspondence was made public by inserting his letter and our answer in the JOURNAL, page 54, volume 1. His question is, "Must the lime we need to nourish the osseous system come only from or through the vegetable? or can we appropriate lime, iron, etc., directly from the mineral kingdom?" Our reply was, "hens were kept in a small lot. Though they appeared healthy and gave a liberal supply, their eggs had shells so thin that it was almost impossible to handle them without breaking. All the eggs had thin shells. Without change of run we added a liberal supply of marble dust to their feed which was otherwise unchanged. Improvement was rapid, and in two weeks all the shells were normal. On a smaller scale, this experiment has been frequently repeated, with similar results."

No division of the flock of hens there? and where's the calcined oyster shell? We have no recollection of ever giving oyster shell to hens, or of ever speaking of doing so. Sometimes we used cliff lime, and very often broken stalactites. If the rust of a metal (and lime is nothing else), precipitated by the evaporation of water, belongs specially to the organic kingdom, it is not worth while to draw the line.

Our good brother seems to take pleasure in telling how little he knows, intimating, however, that the little he does know is vastly in advance of the knowledge of the thirty or forty whose views he has, who rank high as scientists, and who think they know all about it. And he ought to feel better after demonstrating the editor of the OHIO STATE JOURNAL and "the professor of physiology" to be natural fools, or asleep when they uttered what he imputes to them.

But after all, Dr. R. may have given the true explanation of the whole affair in the first remark here: "We discussed this matter some years ago, and our minutes made me say a great many ridiculous things I did not say, nor did anybody else.

Consequently, we will have to be very careful or we will get the thing mixed again." Evidently "the thing" is badly mixed.

CRITICISM AND APOLOGY.

THE *Independent Practitioner*, for March, 1882, on page 200, says: "The welcome volume of transactions of the Illinois State Dental Society is at hand — better late than never. It should be possible to hand it around a little earlier. The delay from May till January is a little too long."

This is all very true; but with the present methods of managing such things, the delay is almost unavoidable. The Publication Committee wishes to be fair as well as accurate. The author of a paper often wishes to transcribe it after having read it. He thinks he can improve the grammar and rhetoric. The committee lets him have his paper. Delay occurs—the committee writes, urging action. After a long time a paper comes, more or less remotely resembling the one read. It is put in type and a proof is sent. The author is not an expert proof-reader, and lacks confidence in himself in this direction. In obedience to universal law he postpones that which is disagreeable. He prefers work at the chair; and half a circumstance makes an excuse for postponement till the next day. He thinks he will secure the assistance of a friend. The friend is not at home—gets home after a while, but must first straighten up his own business, which has become confused on account of his absence. The patience of the chairman of the committee is about exhausted. He writes again, and after a long time he gets a return of the galley proof, with a request—almost a demand—for a "revise." "Practice makes perfect," and "the third time is the charm;" so with his past experience in procrastination, he is able to delay the revise longer than he had kept either copy or proof. At least five out of seven papers referred to the Committee on Publication have about this experience. And time is passing all the while; or, as the freshman has it, *Tempus* continues to *fugit* till the month May be January.

And when the committeeman has received all the papers, he finds himself only a man, and a man must make money. In other words, he has professional duties demanding attention, and

the society's business must yield to the demands of these duties, and all in all, though delays are dangerous, they are almost unavoidable, under present modes.

Would it not be a good plan for each society to employ an editor to coöperate with the committee, and let him attend to getting the matter into and through the press in proper time and shape, and receive a reasonable compensation for his services? Scarcely any society need look outside of its own membership for a suitable editor, and most, if not all of them, could find such among the younger members, who are abler for extra duty than are their older brethren, while they are more likely to have the spare time to devote to such duties. We believe these hints are well worthy of the attention of our societies.

Correspondence.

"I charge you that this epistle be read."

A PECULIAR CASE.

Editor of the Ohio State Journal of Dental Science:—

DR. C. GRAHAM, of Chicago, reports the particulars of a case which came under his treatment a short time ago, the history of which may prove of interest to many in the profession. One night last Fall a young married woman awoke with a violent pain in her throat. A physician was called, but could give her little relief. She lost her voice. The best medical skill of the city was applied to. Laryngoscopes and all the medical appliances of science were employed, without furnishing relief. She could eat nothing but fluids, and those only with the greatest pain. She fell away in flesh, and gave birth to a child, which died of inanition. The doctors told her she had a tumor, and that it could be removed only by a surgical operation. Finally she applied to Dr. Graham. He noticed that two of her front teeth were gone, and asked in regard to them. She replied that she formerly had two false ones on a plate; that she had taken them out before going to bed on the night when her

trouble began, but they had been missing ever since. He inserted a pair of throat forceps, and, discovering some foreign substance, grasped it and drew it out. It was the plate and the two false teeth, and the sufferer was at once relieved of the agony.

Would it not be well to caution persons wearing partial sets of teeth to take them out before retiring?

DR. J. W. CORNELIUS.

Madison, Wis.

NORTHERN OHIO DENTAL ASSOCIATION.

The twenty-third annual meeting of the Association will be held at Cleveland, Tuesday and Wednesday, May 9 and 10, 1882. A cordial invitation is extended to the profession. Subjects for discussion: Filling Teeth with Gold; Dental Prosthesis; Oral Surgery, and Cases in Practice.

“STILL SHORT ABOUT ONE PAGE.”

AFTER we had fancied for days that our brain-work for the month was over, think what a soul stirring announcement this is. But there is no good way to get around the difficulty. We are too far off to talk back, and too polite to tell the printers to go to the d—l; their own, of course.

“Of all sad words of tongue or pen,
The saddest are these, ‘It might have been.’”

Yes,—it might. We might have made that prosy special a page longer, and it would have been easy when fired up, but to get up “one page” now, after we have cooled down and lost our scissors! This is oppressive.

But let us all look over our professional lore—scan closely and impartially, and see if it may not be “still short about one page.” And if so, let us supply the page.

And there is another book. We write in it daily, each of us. At the great day of all, when our records are read, may it be said of no one of us all, “Still short about one page.”

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“A word fitly spoken is like apples of gold”—SOLOMON.

INFLAMMATION.

BY GALEN, XENIA, OHIO.

By the term, *Inflammation*, is meant that peculiar morbid condition that is characterized by *unnatural redness, increased heat, pain, and swelling*.

The co-existence of these phenomena, in one part, may be considered as sufficient evidence of inflammation of that part. If this condition remain for only a short time, present in any one part, certain *modifications* of the *nutritive* and *secretory processes* take place.

The absence of any one or more of these phenomena does not preclude the existence of inflammation. For instance, pain is sometimes wholly wanting, and abnormal heat and redness often disappear before the inflammatory process ceases. We frequently in the definition of any natural process find a difficulty consequent upon their closely allied relations, that makes it almost an impossibility to separate them, even for the purpose of description. We shall endeavor to be as explicit as possible, and convey

our ideas in such language that our readers will not mistake our meaning.

It will be our aim in the discussion of this subject, to include the series of local changes, which *commence* when *simple irritation ceases*, and conclude with the *loss of life* or *restoration to health*.

In the outset we remark that "*Inflammation*" is by far the most important of morbid conditions, and is of vital importance to the dentist as well as the physician. It either accompanies or forms an essential part of all serious diseases, and in many cases constitutes the chief source of danger.

We will endeavor to present the subject in its general phenomena, progress, and results; its nature, its causes, its modifications in the different tissues, and those varieties that are ordinarily termed specific.

REDNESS—We generally observe this phenomenon in the outset. If followed by others, in a short time, we say that the patient is affected by some influence that is likely to produce *inflammation*. Redness is of various intensity and shade according to the degree of inflammation and its stage, part affected, the state of the system, and the nature of the cause.

We find every grade of color, from the light rose color to a deep crimson or purple. In some cases we observe it in points, in lines, or streaks, in minute ramifications, and in uniform redness simulating blushing. It often assumes a degree of intensity in the center or point of irritation, then radiates from this center to adjacent parts, becoming paler and less prominent, until it is finally lost in the surrounding healthy tissue.

Again, it may be stopped by an abrupt boundary, and be of uniform intensity throughout, the brighter hues indicating or accompanying the more active grades, the darker, that proceeding from some specific cause. Again, we find that the dark, or crimson, or purple redness is indicative of enfeebled constitutions.

The redness will sometimes disappear under pressure, but will return the moment the pressure is removed. The length of time occupied in the return is a good diagnostic sign in determining the degree of inflammation.

Now and then we are unable to remove redness by pressure; the reason for this will be stated subsequently.

Believing that the enlargement of the blood vessels is obvi-

ous from the increased redness manifest to the naked eye, it becomes a matter of some moment to determine the difference between *inflammation* and *congestion*. It may be briefly stated as follows :

The accompanying symptoms and their products, with the general features, that the parts involved present. For example : We have greater heat and pain in an inflamed part than in the surrounding tissue. We have earlier and more abundant effusion, fervid redness, the increased flow of blood with a strong and throbbing condition of the arteries.

The increased flow from the veins of the part, shows quite clearly that there is an increased, or at least accelerated motion of the blood instead of diminished motion. This latter condition of things is known to constitute the chief symptom in congestion. Common observation of the pulse of arteries leading from inflamed parts, will show increased vascularity or a greater volume of blood passing through them ; or, more briefly, there is determination of blood to the inflamed part.

Allison and others found by experiments that the calibers of these vessels are enlarged. This is due to want of tone or diminished tonicity in the affected arteries, and is the chief cause of determination of blood.

That the motion of blood is increased has been proved by Lawrence and others, venesection being performed at the same time and in the same manner in both arms of a patient who had inflammation in one hand, and it was found that the flow of blood from the diseased hand was much greater than from the other ; hence, we may conclude, that determination of blood is *present in inflammation*.

The blood vessels in the vicinity of the inflamed part are the media through which this increased flow to the inflamed part must pass to form this state of things from the outset, and to furnish the abnormal condition material or food to keep it alive.

But should we stop here, and could not point out other and more prominent symptoms, then there would be no difference between determination of blood and inflammation.

When we are unable to remove redness by pressure, we say it is owing to the enlargement of the capillaries that keep present in the inflamed part a superabundance of blood. Extravasated blood is also a cause of redness, and pressure, unless long con-

tinued, fails to remove it. The color is occasioned by the richness of the blood in *red corpuscles*. Again, the increased flow being enriched by the red corpuscles, communicates a redness that is allayed or removed only by the removal of the cause that produced this condition. Hunter says that the intense redness may be caused by the blood passing into the veins from the arteries unchanged. But we have swelling, and that peculiar pustulous appearance that indicates the point of effusion. Again, we find from the investigations of microscopists, such as Thomson, Hastings, Kaltenbrunner, and Marshall Hall, that their evidence is in favor of the doctrine of "obstruction to the passage of the blood in inflammation."

In the web of the frog's foot when inflamed, the blood is seen to move more slowly in the part most irritated, gradually accumulating in the vessels, reddening them, increasing their caliber, moving more and more sluggish, until, finally, motion ceases. The contiguous vessels then become the medium of the increased flow. A prominent point to be observed is this retardation or arrested condition of the circulation; this is the *opposite of determination*.

We now come to the *cause* of obstructed blood in *inflammation*.

Cullen supposed a spasm of the extreme vessels to be the cause; Dr. Wilson Phillip claimed that a weakness of the capillaries was the cause of the obstruction; Dr. John Hunter's opinion was that the active and vital enlargement of the vessels was due to what he denominated "*active dilatation*." The German writers use the "*tergor vitalis*," or *inflammatory erection*. Haller ascribes to the circulation of the blood certain supposed properties which he calls "vital attraction and repulsion," on the hypothesis that the blood was drawn into and repelled from parts independent of all motion of the living solids. This assumption needs confirmation. It delegates to the living body a physical power, and a discerning intelligence in the exercise of that power that transcends all known physical law.

We are able to account for some of the known physical and vital laws governing the living human body in health and disease, without recourse to the hypothesis of any mysterious force or agency. And now we propose, if possible, to give a rational account of this phenomenon of inflammation.

It is said that when an artery is tied that the blood ceases to flow in the open end of it, and passes away by the adjoining branches, which are enlarged by the increased quantity, while the tied end becomes empty. But we know that this is not true, at once, for there is a strong pulsation above the ligature of tied arteries, which sometimes, in cases of accident, gives rise to secondary hemorrhage.

This shows, beyond a doubt, that the blood has no inherent disposition to seek new directions. When a coagulum has formed sufficient to prevent the passage of the current of the blood, the vessel loses its tonicity, and contraction of the tube takes place and the contents of the vessel are directed into adjacent branches. This certainly does not prove any self-acting power, nor are we led to suppose or ascribe any independent action separate and apart from the contractions of the solids.

It has been implied, and we now make the declaration, that inflammation may originate either in determination of blood or in congestion, and that inflammation essentially comprises in its morbid elements both these phenomena.

Take the familiar illustration of the web of the frog's foot, and we find that irritation causes first, determination, then congestion. These facts being the result of enlargement of arteries, veins and capillaries. When we apply a strong irritant, a drop of essential oil to the web, the blood vessels speedily become enlarged, those most inflamed by far the largest and reddest. The blood soon begins to stagnate and coagulate till complete congestion takes place. In the course of our argument the reader will observe that the reason for the tardy motion of the blood in enlarged capillaries that accompanies inflammation, is still an open question. We state in the first place, that the blood itself (or the blood vessels) is the only place to work for a satisfactory solution to the question. It has been stated that loss of tone and flaccidity of blood vessels, is a cause of the diminished current by removing tone, by which the vessel itself maintains its caliber and the proper tension necessary to transmit onward its contents. Vessels thus weakened soon become inelastic, and instead of conveying their contents equally and with uniform force, become distended and tortuous, and do not receive the blood properly, and by their mass, as well as inelasticity, in a measure break the force of the current.

In determination of blood the arteries are enlarged, so are the capillaries; the circulation, therefore, is increased. In congestion the capillaries alone are enlarged; the motion or current is therefore impaired, but still the blood will find its way through the mass, but slowly. But if we add to the congested capillaries the increased and abrupt force of enlarged arteries, the atonic congestion of the lesser vessels kept in mind, the propulsive power of the current is impaired.

It, therefore, may be stated as a fact, that one cause of retardation, stagnation of the blood, in an inflamed part, is owing to the weak and inelastic condition of the capillaries, such as exists in atonic congestion.

The continual stimulation of a part is followed sometimes by congestion rather than inflammation. It is thought that this fact is owing to the exhaustion of the tensive power of the small vessels, which leaves them in a weakened and enfeebled condition.

In other words they lose their contractility. But it is also true that many of the features of inflammation are caused by the changes in the blood within the inflamed vessels. Dr. John Hunter's opinion was that coagulation of blood in inflamed vessels was caused by the adhesion of fibrin to their interior. Gendrin was of the same opinion. Dr. Marshall Hall believed that the obstruction was due to the adhesion of blood globules to the walls of the vessels. Poiseulle speaks of a motionless layer of serum between the moving blood and the walls of the vessels themselves. Williams and Tozabee found by experiment that it was not the red particles but the white corpuscles or colorless globules, called by Müller *lymph globules*, that rolled along the sides of the vessels and finally became adherent.

NEURALGIA—ITS PROPHYLAXIS.

BY S. S. WILSON, M. D., XENIA, OHIO.

IN an article upon "Neuralgia—Its Pathology and Etiology," published in a former number of the JOURNAL, we spoke of the obstinacy of this disease; of the necessity for the exercise of earnest, persistent efforts to conquer it; of the likelihood of mortification on account of repeated failures, and of endangered professional credit at the hands of dissatisfied patients. The lapse of a

few months has not relieved these difficulties, but, as we approach the subject of "Treatment," they seem like mole-hills grown to mountains. It will be our aim in the present article to point the practitioner to a few of the most important principles of prophylaxis, that he may use them as a foundation upon which to build, as his cases may indicate. It is particularly true of this disease that "an ounce of prevention is worth a pound of cure."

In the article above referred to we attempted to give special prominence to the ideas of heredity in this disease, and of the central location of the essential lesion. These two points furnish the foundation for the following article.

We all recognize it as a clinical fact that shortly before or during the period of puberty is the time when the neuroses most frequently begin to manifest themselves. Prior to this period much can be done to avert the evils of a neurotic inheritance; and, first of all, the medical advisor should make it his business to impress upon the minds of parents of neurotic children the importance of persistent efforts to accomplish this end. Within the nervous centers of such a child there are planted seeds, which, if allowed to grow, will not fail to yield a harvest, more or less abundant, to the detriment of that child. Our aim should be, first, to prevent the germination of these seeds; and, failing in this, we should next attempt to prevent their growth. The period of life at which treatment should be begun is the earliest at which the child can receive a mental or a moral impression. The education of a child, at home and at school, should be attended with extreme care: and here we will mention, only to condemn it, a practice which is almost universal with nervous parents, and one which is most pernicious to the neurotic child. We refer to the practice of making the ailments of children, whether slight or severe, the subject of much conversation in the presence of the children themselves. There are few practitioners whose observation will not embrace many such cases, and the most dilatory student cannot fail to recognize the very bad moral effects which are the inevitable results of such a practice. For this practice the physician is frequently responsible, the desire for a reputation leading him to make exaggerated, if not false statements, as to the condition of the child, and also to feed that longing of the nervous parents to think that there is something exceedingly peculiar about the case of *their* child. A state-

ment to this effect is usually sufficient to secure the discussion of the case with every presence into which the child may come, and but little time is required to create a morbid condition in the child's imagination, even if it does not exist in fact. I repeat it, that these children should be spared the evil effects of having to listen constantly to the discussion of their own ailments. Rather should their minds be continually engaged with external objects, and introspection always discouraged.

The mental training of the child should be attended with extreme care, especially during the period of sexual development. This is a portion of the physiological development of the child, which cannot be interfered with with impunity. It must be accomplished in its proper time, and to this end the minimum amount of mental work should be required of the child, for already the nervous centers are being exhausted of their reserve nerve force, and if we add still another drain, some portion of the great nervous center must suffer starvation, and a disorderly nervous action result. On this point our female population, from fourteen years of age upward, is a living commentary. It is a common thing to be accosted by a patient, whose general nervous system has suffered actual starvation by the forced development of the mental faculties, cotemporary with the development of the sexual organs. Under such circumstances is it any wonder that a disorderly nervous action is developed, producing explosive manifestations in the motor apparatus and pain in the sensory?

The nutrition of the child is a matter of vital importance in connection with this subject, and is a point very much neglected, both by parents at home and by instructors at school. During the period of bodily development, and especially during the period when, in addition to this, the development of special organs is making heavy drafts upon the nervous centers, an abundant supply of the most nutritious food is absolutely indispensable. It is a sad commentary upon the profession in former years that plethoric and anæmic children alike were compelled to undergo, for almost every trouble, a course of depletion, both in diet and therapeutics, a course most hazardous to the nervous system and incompatible with nervous health. The supply of nutriment should have no limit except the capacity of the digestive organs, and more frequently will we find occasion to reinforce this regimen by a course of cod-liver oil, iron, quinia and strychnia, than to detract from

it, either by limiting the supply or by depleting the system of what it has already received. Years ago the profession awoke to the fact that blood-letting was a procedure rarely called for, and that the system that was being drained by disease needed to be fed rather than depleted. Carrying this common sense into the subject in hand, it requires no far-sightedness to see that during the period of bodily development, and especially about the period of puberty, the nervous reservoir, whose outlet is at this time greatly increased, must have its supply correspondingly increased, or in time it will become exhausted. The physiological, as well as the pathological, drafts upon the system demand a supply, and if the draft is temporarily increased the supply must be increased correspondingly. This we must accomplish by an abundant supply of the most nutritious food, and, if need be, by a course of therapeutics that will reinforce it. We must fortify the nervous system against impending dangers, and to this end a liberal diet is the most efficacious means which we possess. The importance of this measure cannot be too much emphasized; for, even at this late date, there are found persons, and we are sorry to know that there are medical men who, though recognizing the fact that rapid and incessant additions are being made to the tissues of children and young people, fail to perceive the demand for almost unlimited supplies of food. One is almost led to profess adherence to the doctrine of "The survival of the fittest," as he sees the absurd theories in regard to the dangers of excessive "grossness of blood," and the consequent starvation of children, going down before the assertions of common sense, that the rapidly developing body must have a liberal supply of the most nutritious food.

Sexual irregularities are fruitful causes of the neuroses in persons who may be considered to possess a neurotic disposition. Prominent among these, we may mention onanism, and some of the diseases peculiar to females. Onanism is looked upon as a very active cause of many nervous affections; but, while we believe that excessive onanism, by lowering the tone of the nervous system, may excite an outbreak of some one of the neuroses, where heredity or some other predisposing cause has been at work, we are firmly convinced that the baneful effects of the secret vice have been over-estimated. Menstruation in its faulty forms, and uterine diseases by their peculiarly depressing effects

upon the nervous system, frequently precipitate a neuralgic habit in a neurotic subject. The presence of these irregularities indicates the treatment to be instituted for the prevention of the neurotic sequel. Where the seeds which have been planted in the neurotic constitution have already germinated, measures to prevent their growth present themselves in the avoidance of violent mental or physical exertion; in protection from the extremes of heat and cold; in preservation of pure atmospherical surroundings; in the continuance of a liberal diet; and in a due regard to the physiological changes which constitute the natural crisis in the life of the organism.

ARTIFICIAL TEETH.

A HINT TO MANUFACTURERS.

BY W. H. ROBINSON, D. D. S., OAKLAND, CALIFORNIA.

THE morning mail brought us four circulars—advertisements of artificial teeth. The special point of *merit* claimed by all for these teeth is, *their cheapness*. “Price less than any other maker.” “Only \$1 per set.” “Trial set only 75 cents, and a liberal discount in large quantities.”

We want to say to these manufacturers, dentists are not, as a rule, *frauds or fools*. Your teeth are too cheap. Of course, if we can buy as good a set of teeth for one dollar as we can for two dollars, we would take the teeth we got for the least money. But the proposition is self-evident that if any manufacturer can make a set of teeth for seventy-five cents he can make a better set for two or three dollars. I know I speak the sentiments of a majority of the profession when I say we do not want cheap teeth. We want good teeth—natural looking teeth; strong teeth; teeth with proper sized pins, carefully headed and set deep enough, and in the right parts.

Now, dear manufacturers, do not waste your energies, tax your resources, and spend your money making and advertising cheap! cheaper! cheapest! Substitute good! better! best! And then we will look at your circulars, consider their contents, and possibly try your teeth; and if we find them good, *i. e.*, natural

in appearance, adapted in shape, and of the greatest possible strength, we will not object to paying two or three times the price you now sell for.

The whole experience and energy of tooth manufacturers seems to be devoted to the production of cheap teeth. The questions they seem to be trying are, "How little platinum will make a pin?" "How little trouble can we take in putting the fewest pins into some hideously molded, half baked, non-annealed caricatures, called 'cheap teeth?'" Let me tell you, if you do not already know it, that there are thousands of dentists, who would rather give five dollars for a set of teeth than take yours as a gift. The wants of the profession and its patrons are not cheap teeth, but better teeth. The manufacturer who gives us the teeth we want will find plenty of buyers who would rather pay five dollars for a set worth that money, than one dollar for the kinds so extensively advertised, that have no merit but cheapness.

What improvements have been made in the manufacture of artificial teeth in the last twenty-five years? We mean in the quality of the teeth produced; not in the modes of producing them. The answer is plain and definite—*not any improvement*, except cheapness and its equivalent, worthlessness. Has the highest point of excellence been attained? No intelligent dentist or manufacturer believes this. Why have no improvements been made? Because manufacturers seem to think the only improvement desired is *cheapness*, and all that cheapness implies in the way of cheap materials, cheap modes and worthless products. What we want is teeth at three, four, or five dollars per set, and worth that amount. The manufacturer who gives us these will find plenty of purchasers and do a little honor to the business he represents, and possibly find his pockets more plethoric than they are wont to be with worthless teeth at seventy-five cents per set.

Glass is an extremely brittle substance. Nearly all transparent bodies are brittle. Malleability and transparency have, to a great extent, been looked upon as self-contradictory states, that could not exist at the same time in the same body. But malleable glass was a very desirable article. Man wanted it, and man went to work and made it. The process is not yet perfect, nor the product all that we desire; but the French do produce

malleable glass. *We want malleable teeth.* When we want them intensely enough we will go to work and produce them.

Now, reader, laugh at this as a ridiculous idea, the same as you did at many other ideas that a few years ago were equally ridiculous, but are now *sober* realities. How nice it would be to take a set of block teeth, a metal cast and a hammer, and make those gums just the shape of that irregular, crooked cast. That canine sticks out too far; a little pounding brings it in, and a few blows make that lateral incisor just fit nicely over that projecting lower lateral. What an æsthetical tooth a few blows of the hammer gives that straight, stiff, prosthetical denture. "Ha! ha! ha! how absurd to think brittle porcelain can ever be made to bend under the hammer." This is the laugh of credulous ignorance. "Ha! ha! ha!" you will say in a few years hence, "how nice these malleable teeth do work. Just see that expression and that antagonization; they are just the things; strange some fellow didn't think of that process before. Why, any fool might have known that mixing —— with porcelain, and that process of annealing would have made it malleable."

COMMENCEMENT ADDRESS.

THE graduates of the Indiana Dental College, at its late commencement, were addressed by Dr. S. B. Brown, of Fort Wayne, Indiana. The address is brief and pointed, as well as appropriate. Ordinarily there is much of sameness in this class of literature, and consequently we have not published all that has been offered. Space would not admit, nor did occasion require. The address of Dr. B. is given below:

GENTLEMEN OF THE GRADUATING CLASS—From the moment you first determined to become dentists you have looked forward with great solicitude to this day. The least hopeful have, no doubt, had misgivings that are now set at rest—the crisis has passed, and to you has been the victory. You have been declared by the faculty of the Indiana Dental College to be well worthy of its diploma—no formal, empty honor, I assure you. To them, as well as yourselves, too much credit can not be given for bringing you to this high standard. This is most emphatically commencement day with you. To-day you have entered upon a new era in your lives. It is a time-honored custom for one of our profession to be invited to offer a few words of advice and encouragement to the class on occasions like this. This honor has fallen upon one who makes no pre-

tentions in the profession outside of the daily routine of an office practice. The suggestions are here offered only with the hope that "what comes from the heart may go to the heart."

In behalf of the college authorities and the dental profession I cordially extend to you the right hand of fellowship, and congratulate you upon entering a profession that has such a field for progress—a profession in which the highest type of manhood may be attained. In its pursuits there are no temptations to deceive—all the ends are best met by a full statement of the truth. They who are best informed submit with the most confidence to the difficult and painful operations with which we are intrusted. A profession that has been declared "the latest and greatest upheaval of science." With well-earned honors it is presumed you go forth as doctors of dental surgery to practical life. To succeed, you must enjoy the public confidence. This you cannot do unless you deserve it. The community in which you reside will be more observant of your "daily walks and conversation" than you may at first realize. To be a good dentist is not a passport to success. You must be true professional men—gentlemen, honest and pure. Cultivate your minds, as you will be in professional contact with the refined and educated; they will rightly judge from your brain what your handicraft must be. In receiving these diplomas you assume an obligation to protect and elevate your profession. It imposes restraints upon you which you must at all times regard. In your daily practice you must be prepared to meet the peculiarities of each case as it is presented, all to be regarded as special and interesting; it is always of importance to your patient, frequently magnified; but all their views, however erroneous, should be treated considerately by you. Our operations are often attended with much pain; it is important that we extend sympathy to the sufferer, not that of an affected sycophant, but genuine; nothing else will pass; if you lack it, cultivate it that it may be real. Nothing will prepossess your patient more than to feel that you do not willingly inflict pain. Never doubt that they experience all they give evidence of; it is better to act upon this presumption than upon any incredulity—in a word, you must be in harmony with your patient, with sufficient firmness to accomplish the end in view. Let your offices be so arranged that your visitors will recognize refinement and taste, and above all, so that they may be attractive to yourselves. In the first years of your practice it is not likely you will be fully occupied; it is necessary that you now guard against habits of indolence. I would recommend that you interest yourselves in some study best suited to your tastes collateral with dentistry. Microscopy affords a profitable one, fascinating and instructive, revealing to you the beauties of a world unseen by the unaided vision. Of your personal habits, what shall I say? This is most important of all. It is your character. There is one evil—one enemy to mankind, upon which so many valuable lives are wrecked, that I feel my duty would not be done if I did not warn you against it. It is the use of intoxicants. It is the broad stepping-stone down to degradation, and the first drink is the first step. Let me entreat of you never to "taste, touch or handle" from this hour. In the curriculum of this college I believe Watt's chemical essays are included. This volume contains language in extolling nature's beverage that may possibly have failed to impress you. It is so pertinent to my advice to you on this point, that I quote it: "In the day that God created these wonderful elements, positive and negative, created He them, and blessed them, and called their name water in the day when they were created. The drink that a God of love has distilled for all of

his children. The liquor that strengthens, refreshes, revives, invigorates and purifies. The beverage which has no orphan's tear as its sequel, nor widow's wail as a requiem over its fallen victims, a drink that demons do not delight in. The murderer does not imbibe it to prepare him for his crime, nor the reveler as a prelude to his midnight debauch. No ghosts of murdered innocents awake from their slumbers to curse the cup that contains it, or the fountain that gushes it forth. Dethroned reason does not curse and babble under its influence, nor does delirium travel in its wake. The lone prisoner does not accuse it of the crime that has brought him to the dungeon cell; nor does the felon on the scaffold curse the 'moss covered bucket' for his untimely end. Prisons and alms houses do not overflow with its victims; nor are courts of justice kept busy with its crimes." In your business intercourse be always known as reliable. Let your word be as good as your bond. Never go in debt beyond your ability to meet at a stated time. Never let a creditor call on you more than once; after that make the calls yourself. Let it never be said of you that you made a promise which you did not redeem. The most odious members of any community are those who do not pay their debts. Thus, by being prompt you can consistently exact promptness in return for your services. Now, having urged upon you this consideration for others, it is but justice to yourselves and indispensable to your success, that you require adequate compensation for what you render to others. Dentistry is a liberal profession, and you should be ready and willing to treat those who are unable to offer a return without a desire for reward; but for those not having such claims, never fail to fully estimate your own labor, if you would have others do likewise. You can not progress as dentists, nor become good citizens without means to discharge your pecuniary obligations, and it is your fault if your profession does not, like other learned and liberal professions, command it. Now, in parting, let me assure you that this is not an occasion for the severance of ties that have been formed and bind you to your faculty, but on the contrary they are now strengthened by a brotherhood. They who have labored with you so long and unselfishly will always esteem it a pleasure to encourage and counsel you as you go forward in the battle of life. I am sure, with their noble example before you, you will be an honor to your *Alma Mater*, and a credit to yourselves. Farewell, and God bless you!

THE RELATION OF DENTISTRY TO MEDICINE.

Response to a toast by W. W. ALLPORT, M. D., D. D. S., at the Quarter Century Banquet of the Michigan State Dental Society, held at Detroit, March 29, 1882.

MR. PRESIDENT: It is now twenty-seven years since I first passed through Michigan looking for a western home, which I found in the then young but promising city of Chicago.

Many times since that period various business has drawn me within the limits of your State. For several years I had interests at St. Joseph, which required my frequent attention, and I have

often spent my summer vacations fishing in streams tributary to your upper lakes. My journeys to and from the East, which have not been few, have usually taken me through Detroit. In fact, so often have business and pleasure alike called me among you, and so much am I attached to your State, that I almost feel that I should be reckoned one of her citizens, and that I ought to be a member or your Society, rather than your guest, to-night.

Our Union has few States more blest than yours in natural resources. It is rich in the products of agriculture, in native ores of copper and iron, in salines, and in vast tracts of forest, which contribute their wealth of building material to our treeless prairies, and add comfort and beauty to our homes. It is fruitful in enterprises and industries of all kinds, and it has a commerce of which many countries of the old world might well be proud; but its crowning glory is its system of education, from the district school to its splendid university, which ranks among the first, and in many respects, is first in our country.

And well would it have been had our other Western States so bountifully and wisely provided for the education of their sons and daughters. The graduates of the University of Michigan are found in every State of the Union. From it has come some of our first scientists and most learned practitioners and teachers of law and medicine, as well as many judicious law-makers in our State and National councils. To it is Chicago largely indebted for her most distinguished medical practitioners and teachers; and the recently established dental school in connection with its medical department, has been sending out graduates whose medical education is superior to that obtained in most of our regular dental colleges, and they are finding place and making for themselves position in our Western States.

And this brings me to the subject of the sentiment to which I am called upon to respond—"The Relation of Dentistry to Medicine."

To define this relation is not an easy task. The status of law, medicine, and divinity, as well as that of the various mechanical pursuits, is well defined, not only by those engaged therein, but by the public at large. But this is not the case with what is known as dentistry. Even many who practice it are not fully settled as to whether it is a mechanical pursuit, a profession by itself, or a department in medicine; and the facts in regard to its practice fully justify this undefined position. If I were asked whether

dentistry was a mechanical business, my reply would be "yes." Or, if the inquiry were whether it constituted a special department in medical practice, I would also reply "yes." If asked whether it were a calling by itself, as many claim, my reply would still be "yes"—according to its teachings and practice.

But how, you ask, can the same answer be given to these seemingly contradictory inquiries? To this my reply is, when a man practices what is popularly known as dentistry, such as removing tartar from the teeth, preparing cavities and filling them, and making sets of artificial teeth, no matter how well these operations may be performed mechanically, if he is ignorant of the cause of dental diseases and of the medical science essential to their proper treatment, he is a mechanic and nothing more. In this case, so-called dentistry is in no way *related* to medicine. If, on the other hand, the practitioner is medically educated, is conversant with the cause of the diseases he is called upon to treat, and the relation they bear to associate parts in the manifold reflex action of the teeth upon other portions of the body, and the action of remote organs upon the teeth and their appendages, and brings as many do the same intelligence to bear in the treatment of dental diseases that the ophthalmologist does upon the treatment of the eye, or the surgeon upon the treatment of other surgical operations—then he is a special practitioner in medicine, with all that the term implies. In *this* case, dentistry bears a most *intimate* relation to medicine.

But if he has sufficient mechanical skill to construct the simpler kinds of mechanical dentistry reasonably well, and possesses tolerable, or even marked skill in the mechanical manipulation of filling teeth, in what is known as operative dentistry, and has just enough medical knowledge *not* to be a physician, then I suppose it would be considered that he belonged to a distinct calling—our "glorious" profession.

The anomalous and strange position which our vocation occupies at the present time will not be wondered at when we consider its history.

It is said, and generally with truth, that first impressions are the best, and when Dr. Harris was impressed with the idea that the diseases and treatment of the teeth should be taught in medical colleges, and that dental surgery should be made a specialty in medical practice, he was undoubtedly correct; and when a

medical college refused to establish a chair for that purpose, future progress in dental science made the establishment of dental colleges a necessity. Hence, it was not from choice but necessity that our present system of dental teaching was inaugurated, and it is not impossible that the advance in the science and practice of dentistry has so far been quite as great under this system of teaching as it would have been had it at *first* been connected with medical colleges; and, under all the circumstances, we most certainly have just cause for congratulation that our dental colleges have done so much, and so well what they have done.

But there is no question that the proper practice of dentistry in its two departments has now become so complicated—the one with mechanics and art, and the other with mechanics and medical science—and the proper practice of each has become so intricate, that there are few indeed who possess the natural gifts or could acquire the necessary and varied skill for the proper practice of both in their present advanced scope and relations; and the further attempt of our dental colleges to teach both to the same individual, and to make a partial qualification in each essential to graduation, and the subsequent attempt on the part of these graduates to practice both departments, only serves to dwarf both.

Proficiency of attainment in these two dissimilar vocations in the time now allotted to their study, is utterly impossible. When properly learned and practiced, one should be classed as a mechanical art, the other as a medical specialty.

The proper practice of dentistry as a distinct calling requires three leading and well-marked natural gifts:—mechanical talent, artistic feeling, and the ability to comprehend medical science—three qualities seldom found in the same individual. The first is mechanics; this is required both in what is known as mechanical and in operative dentistry, and without which more than a moderate success in either would not be possible. But from this common ground their lines diverge, and they have little, if anything, in common. In the mechanical or prosthetic part of dentistry, mechanical talent should be supplemented by the same gifts which would make either a sculptor or a painter; and these gifts should be cultivated by art studies rather than the medical studies essential for the dental surgeon.

Artificial dentures have three uses; mastication, aids to

speech, and artistic or natural appearance in the mouth. Their fit and usefulness depend entirely upon a knowledge of the principles of mechanics and their correct application. A proper construction of artificial dentures so as to aid speech, involves a knowledge of anatomy and the action of the vocal organs, a lack of which knowledge will explain why so many sets of artificial teeth are impediments instead of aids to speech. Their natural appearance in the mouth depends entirely upon the application of principles of art, which are distinct from dental surgery.

Proficiency, therefore, in prosthetic dentistry requires study and skill far too great to be coupled with or tacked onto the tail of any department of medicine—the attempt to do which has rendered it simply as a mechanical business almost a disgrace; and I will venture the assertion that there is not at the present time, as generally practiced, a class of mechanical business so poorly followed as mechanical dentistry. I will not except ready-made clothing or boots and shoes.

Now, we all know that for full sets of teeth there is nothing that will compare with what is known as continuous gum teeth, and of the twelve thousand dentists in the United States, there are not two hundred who can do this style of work properly, or even acceptably—and I doubt if there are one hundred. And there are not one thousand who can creditably meet the various requirements of full and partial cases on gold plate. And yet, there is no doubt that when these two kinds of work are properly done they are far superior, in most cases, to rubber or celluloid. Nor is this condition of things to be wondered at when we remember the skill that is required in putting up this better class of work, and the inadequate time and teaching that is given to learn it.

Why, Mr. President, a man cannot learn to put up good gold or continuous gum work, even mechanically, to say nothing of its art, in less than two years, and he may do nothing else. But when is added to the mechanical part the selection and arrangement of teeth in the mouth to give a natural appearance, though he may possess an artistic gift, three years is as little time as should be devoted to learning it; and it is utterly impossible for any considerable number to learn the details and acquire skill in mechanical dentistry, and at the same time gain such a knowledge of medicine and acquire such skill in the treatment of dental dis-

eases as will make them proper practitioners of dental surgery in the time usually devoted to it in the accepted mode of teaching.

For the credit of ourselves, as well as for the best interests of the public, this inadequate teaching and grade of practice should be abolished. But it never will be so long as it is taught in its present manner.

There is enough in mechanical dentistry to engage the entire time and attention of the finest mechanical and artistic talent, and it will never be elevated to its true position until it is learned and practiced as a distinct mechanical art, uncomplicated with medicine.

On the other hand, the proper treatment of dental diseases requires a knowledge of medicine equal to that of the general practitioner, to which should be added such special knowledge as would make the dental surgeon an authority worthy to be taken into consultation with medical men in all diseases either directly or remotely connected with the teeth; which would, of course, include sufficient knowledge to prescribe for all constitutional or local conditions that affect these organs. To this should be added such training as would make him a skilled manipulator in operations upon the teeth, or associate parts. To obtain such knowledge, and acquire such skill, even to a reasonable degree, in the time now allotted by our dental colleges, and at the same time to become respectable manipulators in the various kinds of mechanical dentistry, is simply impossible. And dental surgery will never be elevated to its proper position until its teaching and practice is uncomplicated with mechanical dentistry.

Although our dental colleges have met an important demand, their day of usefulness, as distinct institutions, is nearly spent; and they should be supplanted by a system of teaching more in accord with a higher development of practice. To this end I would establish chairs on dental diseases in all our medical colleges, from which all matters relating to the histology, anatomy, physiology, pathology, and therapeutics of dental diseases, and the science of their treatment, should be taught upon the same footing with every other department of medical science; and the same degree of knowledge regarding these diseases should be requisite to graduation that is demanded in any other department of medical practice. And whether the student intended to practice general medicine, general surgery, or dental surgery, he

should pass the same examination and receive his degree as Doctor of Medicine. In this way, doctors of medicine would be educated in regard to dental diseases, of which they are now deplorably ignorant. And those who might subsequently turn their attention to dental surgery would have a well-grounded knowledge of medical science, of which dental graduates now have but a smattering. For the practical teaching of mechanical dentistry, as well as the practical application of medical science in the treatment of dental diseases, I would have an infirmary. In this infirmary I would have a department for the teaching of mechanical or prosthetic dentistry under the direction of one or more competent mechanical dentists, who would give instructions in all that related to that practice.

The students in this department should be required to attend such lectures as would make them familiar with the anatomy of the parts about which they work, as well as such lectures upon chemistry and art as would be applicable in their practice, and they should receive certificates of qualification on becoming sufficiently skilled in their calling to engage in the practice of mechanical dentistry only.

In this way mechanical dentistry would be elevated to a position of great usefulness and respectability. But it should not, nor could not, in any way be regarded as a department in medicine, or in any way related to its practice, any more than is the making of artificial limbs, or sculpture, or painting.

In this infirmary there should be a department for didactic and clinical instruction for those proposing to become dental surgeons; which department, instead of being under the direction of young dental graduates, as is now too frequently the case in our dental colleges, should be under the direction of the most competent dental surgeons in the country — as clinical medicine and surgery is now taught by the most experienced practitioners and teachers of general medicine and surgery in infirmaries and hospitals. But in no case should they receive certificates of qualification to practice without a medical degree. For the present, or until the people had become educated to the idea that mechanical dentistry could be more properly done by those who follow it as an exclusive business, it might be well to make it optional for those who propose to practice dental surgery to receive instruction in mechanical dentistry; and to give them a

certificate of qualification for exactly what they were competent to do.

If they were competent to put up work on gold or platinum, let it be so stated; and if they were only competent to put up work on rubber and celluloid, make a statement in exact accordance with these facts. But in no way make the qualification to practice in mechanical dentistry requisite to a certificate to practice in dental and oral surgery.

In this way, I should in a few years expect to see our practice permanently divided, and prosthetic dentistry developed into a high mechanical and artistic calling, as well as a more proper and intimate relation established between dental surgery, the general practice, and the other specialties in medicine.

In this way only, Mr. President, would the natural relation between dental surgery and medicine and mechanical dentistry and its kindred arts be developed and maintained; and it is to be hoped that the time is not far distant when the Regents of the University of Michigan will see fit to inaugurate this or some similar system of teaching,—so that prosthetic dentistry as well as dental surgery may be more properly taught and practiced than they now are, and the people more largely benefited.

Editor's Specials.

“Write the Vision and make it plain.”

CHANGE OF CONNECTION.

PROFESSOR F. J. S. GORGAS, after holding a professorship in the Baltimore College of Dental Surgery for at least a quarter of a century, and holding the position of Dean of the Faculty as well, has resigned his place, and is now Professor of Principles of Dental Science, Dental Surgery and Mechanism, in the dental department of the University of Maryland, which is probably the third in age of the medical schools of our country. Prof. James H. Harris, who has held the chair of Clinical Dentistry in the old Baltimore College, is also with the University, holding the chair of Operative and Clinical Dentistry. Prof. G. is again Dean.

PULLING THE SAME STRING.

THE late meeting of the Mississippi Valley Association had a most excellent programme. The reading of it greatly increased our desire to attend the meeting. As usual, of late, we were doomed to disappointment.

It is said that straws show the direction of the wind, and in the correspondence of the *Dental Register*, we find a straw in the April number, and another in the May issue, both pointing in the same direction. From the subscribed initials we infer that these communications are from comparatively young, yet very active and efficient members of the Association. Both indicate dissatisfaction, and, on account of our absence, we are not able to say whether or not the writers have just cause for complaint. The members and visitors present can judge of this much better than we, but as we are exceedingly jealous of the reputation of the good old Society, we lay both communications before our readers, hoping that if wrong has been practiced, such practice will not become a precedent for future action. In general, we would say that ordinarily it is a mistake to depart from the course indicated by a carefully studied programme. We recall an illustration that occurred in what was one of our most energetic local societies. A course had been marked out for a forenoon, afternoon, and evening session. The forenoon passed off as expected. Before the bashful president had called the society to order for the afternoon, an individual, not known as a dentist, and not very bashful, called the attention of the members present to a filling material, and with poker and tongs, for almost the entire period set aside for the afternoon session, he showed the members how to fill teeth. Several left in disgust, not remaining for the evening session; and that society died, we believe without holding another meeting, yet the man with the tongs would not have killed it for a dollar.

EDITOR REGISTER:—Those who are in the habit of going to dental society meetings cannot help noticing what a small proportion of the practicing dentists attend them. Why is this thus? Societies unquestionably do a great deal in the way of disseminating knowledge. Such being the case, what excuse can a man find for staying away? Is it for fear some *gas bag* may occupy

the time for from a half to three-quarters of an hour at a stretch ventilating his ignorance? This, *alas!* is one of the almost necessary evils, and one that we will have to endure for a while, as no practical method of *squelching* such seems yet to have been devised. Or do the absentees flatter themselves that they can get all that is of importance from the printed reports of the proceedings as they appear in the different dental journals? If they do, they are laboring under a delusion, and the sooner they divest themselves of it the better for *them*, as it is utterly impossible to make a report that will give the reader an absolutely accurate idea of what was said and done during the session. Appliances and interesting specimens are exhibited, and modes of operating are illustrated on the blackboard that words are inadequate to describe. They are, consequently, lost to those who stay away. Even if it were possible to convey to their cerebrums a correct impression of what transpired they would still be the losers, as the reports appear any time between six weeks and six months after the meeting was held, and he who attends has the use of any new idea that may have been advanced just that much sooner than he who does not. This to the young practitioners is a fact of vital importance, and although he may have to make a sacrifice in order to attend, yet he will find that he will gather in valuable information; and, perhaps, try his hand in a discussion, stirring up some of the old fossils, thereby stimulating himself to increased diligence in his studies. He will learn that *all* dentists do not, like wine, improve with age.

K.

CINCINNATI, April 1, 1882.

EDITOR REGISTER:—For the past few years it has been apparent to many members of the profession that our dear old mother, the Mississippi Valley Dental Association, is dying of general debility. There are many reasons for this, no doubt; principally the large number of State and local societies that have sprung into existence since the old lady taught us *how* to conduct a society. Very many of the men engaged in practice at the present day learned their elementaries at her annual meetings, and with shameful ingratitude are now giving the results of their training and experience to swell the importance of pretentious local bodies that are as yet scarce dry behind the ears. The result

has been to deplete the M. V. D. A. of nearly all the vigorous blood that once nourished the new-born science, and made her heart-throbs audible to all in the land.

Not least potent in bringing about this disgraceful state of things, is the assinine persistence of some unmentionables to invariably interrupt the order of business, break up the discussion at an interesting stage, merely to foist upon the attention of the members, either their own impotent twaddle or that of some windy edition of antiquity.

The past meeting of the Association promised better than those of some years back. The young men had taken the bit between their teeth and with much difficulty had secured an essayist to open each subject with a paper. The programme was arranged with intelligence, and was the only one for some time past that displayed anything like continuity of idea in the sequence of topics.

But no; this legitimate and worthy effort to revivify, was too much for the ponderous brains of the insatiable kicker. The discussion of an important, interesting paper was squelched, another paper rushed in ahead of time, all to prepare for a cyclone from Chicago, that should have had at least *some* relevancy to the subject in hand. But this is not all; the society was cheated out of another paper that was, at all events, in part prepared.

If the level-headed members of the old association have its interest at heart, they will see to it that every paper costing time and hard work to compose, is given its proper place in the programme. The discussions must *not* be interrupted nor their order changed at the instance of any one, if we expect to render our meetings profitable, and encourage the writers (for they are few) to give us their best efforts.

E. G. B.

HISTORY CORRECTED.

THE President of the Board of Trustees of the Ohio College of Dental Surgery, when conferring the degrees on the late graduates, fell into an historical error in his accompanying remarks. He says, "The first dental magazine ever issued was one of the first assistants of your Alma Mater, and was issued and edited by the noble man from which the college sprang — Dr. James Taylor."

The *American Journal of Dental Science*, if we are not mistaken, was in existence some eight years before the *Register*, which was started in October, 1848, and then by the *Mississippi Valley Association*, and was not transferred to Dr. Taylor till September, 1852. Too much credit can not be given to Dr. Taylor for his early and earnest labors in behalf of the profession, but his best friends wish for correct biography. The *Register* is the oldest dental periodical extant, but was not the first in the field.

A FEARFUL AND FATAL ACCIDENT.

ABOUT the time the advance numbers of our May issue of the JOURNAL were reaching their destination, viz.: about 4 P. M., on Saturday, April 30th, without a moment's warning, our friend and brother, Professor J. S. Cassidy, and his wife, were plunged into the deepest mourning by an accident (?) that deprived them of their beautiful little daughter Nellie. In the language of the *Cincinnati Gazette*, she was "killed by a carelessness that seems almost murderous." Below we give an extract from the *Gazette's* account of the sad affair:

An accident, as terrible as it was unfortunate, occurred in Covington Saturday, the result being the death of Nellie, the pretty little daughter of Dr. J. S. Cassidy, a gentleman well known in this city as one of the Faculty of the Dental College. The frightful affair occurred in front of the lock and gun shop of Charles Ostermann, on Madison street, near Seventh. It was about 4 o'clock in the afternoon when Doc Reese, a colored man living at Greenwood Lake, entered Ostermann's establishment bearing an old musket which he said he wanted fixed. He handed the weapon to Mr. Ostermann, who looked at it carefully, and handing it back to Reese, asked him what he wanted done to it. The latter swaggered around the place with his musket, and then laying it on the counter with the muzzle toward the pavement, in a tone of command told Ostermann to remove a screw, to which he pointed, and then he would let him know what he wanted done. Ostermann started to turn around for his screw-driver, and at the same moment the musket exploded with a loud report. Mrs. Dr. Cassidy was coming down the street at the time on her way to market, and her little daughter, who was tripping along a few feet before her, came on a line with the muzzle of the musket just as it exploded. The charge struck her in the forehead, fracturing the skull, breaking several of the facial

bones, and lacerating her head in a terrible manner. On examination it was found that thirty-five buckshot had lodged in the forehead, while a large bullet penetrated the right temple. Charley Ostermann, the eight year old son of Mr. Ostermann, who was also standing on the pavement, received a bullet wound in the right arm so dangerous that it was thought the member would have to be amputated. Drs. Noonan and Kearns dressed the wounds of the little girl, but the injuries were too great for medical skill to overcome, and she died about three hours after the occurrence.

It is almost superfluous to say that Dr. and Mrs. Cassidy have the deepest sympathy of the entire profession, as well as of their countless friends. But how cold is the best that we can offer them! May He who knoweth the heart give the bleeding hearts of these grief-stricken parents the consolation which He alone can give.

THE CONSTRUCTION OF LOWER PLATES.

EVERY practical dentist is aware of the many annoyances likely to arise in the construction of lower dentures. The upper plate may have been worn for years preceding the patient's call on you. The lower natural teeth are lost, or at least so loosened as to be useless, and you are to remove them and insert an artificial denture. In such cases you generally find the ridge much absorbed — indeed, not a ridge at all. You get an impression and make your trial plate, of wax, gutta percha, or what you prefer, or find convenient. You put it in, and it appears to fit, yet it rides slightly on the soft textures of the mouth, and is easily displaced. It is so flexible or so fragile that its form is so readily changed that you find some difficulty in ascertaining exactly the points of displacement. The nervous irritability and the restlessness of the patient's tongue cause it to move about to such extent as to render your effort to some degree guess-work. You select teeth and begin to adapt them, occasionally trying them in. You find they correspond with and properly antagonize the upper teeth, and you and the patient are satisfied. You prepare and finish your plate, and insert it, to find that while the front teeth and those at one side stand as they should, the teeth of the other side are too short. Your trial plate had sprung up at this side, or had been held off the ridge by the soft parts. As a general rule, when such conditions are found, it is best to re-make the work.

If the work is on rubber, the lightness of the plate remains an objection, and the motions of the softer tissues readily displace it. Besides, it is generally believed that the non-conducting properties of rubber and celluloid result in a greater degree of absorption of the subjacent bony tissues. At any rate, patients will testify that a plate of good conducting properties imparts a cooler and more pleasant sensation to the mouth.

Now, if by some simple process you can have a better fitting plate, with good conducting powers, that will render the details of adapting the teeth less annoying, while there is greater accuracy in the results, you will appreciate the process, while you praise the science and skill called out in devising it.

Now listen: Get an absolutely accurate impression of the lower ridge; with a thin plate of wax or any trial plate material that is at hand, make a pattern for a metallic plate; have a few prominences on your pattern that will bear undercutting with files or chisels, when on the metal plate. Make a mold of this plate, dry well, and cast your plate of Geo. Watt's new metal, or of Watt and Williams' alloy. Try this cast plate in the mouth, and if you have given your pattern the proper shape, you will find that it will lie on the hard ridge, unmoved by the motions of the lips or tongue. If the muscles displace it, trim with file or otherwise till it lies solid. Having made the necessary undercuts, you can build on your teeth with adhesive wax, giving the piece the shape or form you desire. And this you can do with ease and confidence—ease because you can readily see what you are doing—confidence because you know your foundation plate lies in its place without bending or tilting. After the teeth have been thus adapted and properly adjusted, you will mold, pack, vulcanize and finish as with ordinary rubber work.

Care should be taken to make the foundation plate light enough. It can be cast from Watt's metal, as thin as a visiting card; but sometimes great weight is desirable, when it can be easily increased, almost indefinitely.

When this work is properly made it is very handsome. It is much stronger than ordinary rubber work, and insures a very much better fit. We verily believe that there is no other process by which as good lower dentures can be made. The fit is well high perfect. Of course the metal contracts while cooling. All metals do. But the contraction is not great here, as the point of

congelation is low, and the expansion in congealing balances the subsequent contraction.

The foundation plates can be cast in ordinary rubber flasks—can be cast even without flasks; but any who adopt the method extensively would gain by obtaining the Geo. Watt & Co. molding flask, which was gotten up especially for the purpose. It is not necessary, however, to wait, as every dentist has already all he needs except the metal, to adopt the work.

UNJUST CLAIMS.

SOME rather prominent members of our profession, whose studies we guided, to some extent, in former years, have set up the claim that the acid theory of dental caries originated with us. We appreciate the kind feelings that prompt them, but the claim has not a "title clear." When from the practice of medicine we turned our attention to the study of dentistry, we found this theory recognized, but could find no clearness of thought in reference to it. Harris, Westcott, Taylor, and other eminent men, spoke of acids in general as the immediate exciting agents of dental caries, speaking even of the acids given as medicines being exciting rather than predisposing agents, leaving us to infer that carbonic acid was as likely to induce caries as hydrochloric. And strange to say, only a few weeks ago a dentist set up the claim that nascent carbonic acid has much to do as an exciting cause of caries. He refers to the well recognized affinity of this acid for lime, and the disposing or modifying circumstance of the insolubility of carbonate of lime. But the principal calcium salts in the tooth are carbonate, and subphosphate of lime. The lime would gain nothing by giving up carbonic acid to take carbonic acid, nor is the latter acid, either nascent or quiescent, able to decompose bone phosphate to the slightest extent.

But we started out to rectify a mistake on the part of former students, whom we love as sons, and whose friendly zeal has led to error. We believe they have a right to claim for us the settlement of the questions as to what particular acid is the active, immediate, exciting cause of each variety of dental caries. These points we gave to the profession as the result of long, laborious research and expensive experiments, as early as 1856. And it is

a matter of surprise that so few in the profession understand them yet. Nearly all think and talk so confusedly that they make a perfect jumble of the predisposing and exciting causes. And some think they have made a Solomonic discovery in claiming that the acid theory is not the true one, but the chemico-vital is the correct theory. But they talk only chemico-nonsense; for in their including the vital, they talk only of pre-disposing causes, such as defective enamel, badly organized dentine, depraved buccal fluids, etc. And no advocate of the acid theory ever thought of ignoring these as causes of caries, but they bear no relation to the immediate or exciting causes, for no tooth was ever so defective in its organization that it took on caries spontaneously, or without an exciting cause. Recognizing that caries is from without, and is caused by acids, we inquired what acids, and when no one would tell us, we undertook to find out, and never rested till satisfied we had discovered the immediate agent of each variety of dental caries. This our pupils may truthfully claim for us (though it is not essential that they do it,) but we lay no claim to the suggestion of the acid theory of decay.

A failure to discriminate clearly between predisposing and exciting causes of caries is found in most of our text-books, and in very many articles which appear in the periodicals, as well as in the reports of discussions at the societies. One member will suggest that nitric acid is the exciting cause of white decay. Another will spring to his feet to assert that he thinks the member's views too restrictive, for he thinks a crack in the enamel very often causes decay. Now, both are right; but the latter manifests dullness in failing to understand that the said crack can be only a predisposing cause, while the first speaker was confining his remarks to exciting causes. The crack in the enamel will remain till the crack of doom without caries, unless the subjacent dentine is attacked by nascent nitric, hydrochloric, acetic, lactic, or sulphuric acid, individually, or by two or more of them acting in concert. In like manner, defective organization of a tooth predisposes to caries; but it will never be seen, on even the worst teeth, till they are attacked by one or more of the acids above mentioned, and the character of the decay will be determined by which acid, or acids act on them. There are but four distinctly recognized varieties of dental caries—the white, the colorless, or brown (color varying with age of decay), the black, and that

known as chemical abrasion. But as two or more varieties of caries may be affecting the tooth at the same time, the variations in appearance may be very numerous.

We have recently published in the *JOURNAL* evidence of this want of discrimination as to predisposing and exciting causes of caries. In the programme of the late meeting of the Mississippi Valley Association we find one of the subjects to be, "Definite Causes of Dental Caries." We asked a member of the Executive Committee what was meant by definite causes. He replied something like this: Well, the intention is to bring out your special views on the subject. We suggested that the word exciting would be better than definite. A defect in the enamel is a definite—very definite—cause of caries, but it is a predisposing cause, which has no influence whatever, till an exciting cause, in the shape of one of the special acids, is brought in contact with the defective spot. A chalky condition of the teeth is a definite cause of caries, but it is only a predisposing cause, for the teeth stand intact in all their chalkiness, till attacked by one or more of the decay-producing acids. Tincture of iron corrodes the teeth, but the corrosion only predisposes to decay, and the corroded surface remains, or wears smooth, unless attacked by one or more of the above named acids in the nascent state.

SENSITIVE.

Nor sensitive dentine—that's easy; but sensitive dentists. How shall they be treated? especially those good brethren who use amalgams in filling teeth, and, in their zeal to defend their practice, manifest a degree of sensitiveness which demonstrates that they do not feel quite content with their position? They must be treated kindly. We aim to stroke the smooth way of the fur on all animals, feline, K-nine, bovine and all. But these amalgam fellows are so sensitively charged that the sparks fly at every gentle stroke. They're good fellows, but touchy.

They generally assume that teeth which can be securely filled with gold should not be filled with amalgams, yet if their arguments in favor of the latter are sound and conclusive, gold should be set aside in their favor. But an argument that proves too much proves nothing.

The latest of these effusions that we have noticed comes from the K-nine editor of the *Dental Jairus*, and he is after us so fiercely that we feel tempted to call one or both of his B-nine brothers to our rescue. He has made a point on one of our specials in the January number of the JOURNAL. The *Jairus* for April was received after our May number was all in type, which fact explains the lateness of this notice. In this April number K. assumes that three grains of mercury make "a tolerably large filling," we suppose to impress us all with the thought that a quantity so small can not be a serious matter. And this argument has the advantage of a precedent in the case of the unmarried mother who called constant attention to the smallness of her babe. But the three-grain suggestion shows that he feels the embarrassment of his position, for in general the quantity of mercury present in a filling is very far above this. And think of the claim that a material so porous as chloride of silver will shut out chemical reagents, while in truth it helps to retain them in contact with the material. The man is at a loss for something to say, and still more so when he inquires when the JOURNAL was converted to homœopathy. And he is still more at a loss when he begs the question, that though millions and millions of amalgam fillings are inserted, but a small number have proved injurious. Millions and millions of obscure nervous diseases are puzzling and annoying physicians, and will continue to do so till they give closer attention to what dentists are doing. As it is, they very often diagnose metallic poisoning, but fail to trace the poisoning to its source.

But where is K's authority for charging us with "wholesale denunciation of all those who use amalgams, stigmatizing them as 'lazy,' 'feeble,' 'poor quacks,' etc., etc.?" He does not find it in our remarks, and we never had a shadow of such thoughts. But there are lazy men, feeble men, and poor quacks, pretending to practice dentistry, and K. will not deny this. On their account we do not hope to see amalgams abandoned; but we expressed a hope that those who are progressing in the knowledge of chemistry and pathology will gain the light that will induce them to discontinue their use, and we regarded K. as one of this class, and are not willing that he shall classify himself otherwise.

Many of K's positions are too trivial to spend time on. We shall be glad if we never again find occasion to write on the

amalgam question. We doubt if all the good done to the human race through dentistry overbalances the mischief done by the use of amalgam fillings. Were it not for this, we would never touch the subject with our pen.

SPECIALTY? OR NOT?

It seems that our profession must be haunted by some kind of ghost. The American Medical Association led off in the recognition of dentistry as a specialty of medicine. This turned the heads of many of our dental brethren. The International Medical Congress "saw" the recognition, and concluded to go one—as good, at least. This turned the heads still further, almost to the point of professional cervical dislocation. In the days of our boyhood we were told that if we saw a young owl on its perch, we could cause it to kill itself by walking slowly around it while whistling a solemn melody. We never got one killed, and hence inferred that our music was too lively. The tune of medical recognition has been whistled around dental owls ever since we have been acquainted with the dental profession. One of the first papers we wrote for a dental society was in opposition to the plan of making dentists by a single professor of dental surgery appended to a medical college. The main argument for the plan then was that it would insure and hasten medical recognition.

Lately some of our brethren have a grievance because our code of ethics states that dental surgery is a specialty of medical science. It fell to our lot to write the original draft of the code of ethics, and we have a distinct recollection of deliberately penning that statement, and of defending its truthfulness before the Association at its meeting of 1866, in the city of Boston. Its truthfulness is now disputed because very many dentists, perhaps a majority, lack very much in the way of medical education. But this has no bearing whatever on the question at issue. It is not stated that dentists are medical men—that any, or all dentists are members of the medical profession. If there were not a dentist in the world, the statement in the code of ethics would stand secure as to its truthfulness. If there were not a physician on earth, medical science would still exist, and dental science would exist as a part or specialty of it. Dentistry looks after and

cares for living organs, and this involves a knowledge of the laws of life. But this knowledge pertains to medical science, and that settles the question.

We are not sure that the discussion is profitable; but it is natural, for we all wish to know where we belong. But if further discussion is to be submitted, we hope it will be on the proposition, and not, as usual, on a side issue. The question is not, Are dentists members of the medical profession? but, Is dentistry a part or specialty of medical science? A lack of definiteness is the bane of professional discussion. Aged men of science often regret that they did not, when young, pay more attention to definitions. Let the young profit by their experience, and not be wrecked on the same rocks.

DISCUSSIONS AT THE LATE MEETING OF THE MISSISSIPPI VALLEY ASSOCIATION.

THESE will be briefly noticed, on some of their points, as set forth in the May number of the JOURNAL. And let it be distinctly understood that in no case have we anything to do with the speakers, nor do we hold them strictly accountable for the sentiments imputed to them. For, though Dr. Sage has had large experience in reporting, he is not infallible. The report and its teachings have gone forth. With these we have to do now.

We have elsewhere alluded to the indefiniteness of the title of the first subject, viz: "Definite Causes of Dental Caries." *Definite* causes—but predisposing, or exciting? Which? or both? The one class of causes may be as definite as the other, but it makes a jumble of discord to discuss them both under a single heading, as the report shows. For instance, Dr. O., p. 232, says, "Alkalies, as well as acids, attack the organic structure of the teeth." Certainly, but do they present the specific appearances of any one variety of caries? Or does he mean they predispose to the disease? Again, "Caries along the gum-line is due to the use of soap, and to that abomination called sozodont." Which variety of caries is thus produced? The white? Then how does a quiescent alkali produce the specific effects of nascent nitric acid on tooth substance? Or is it the black decay? How, then, does an alkali, nearly neutralized by fatty acids, produce the specific effects of nascent sulphuric acid? Or does the soap merely

predispose to caries? If so, the "caries along the gum-line" is *partly* due to soap, and partly to the specific acid as set forth by Dr. Smith on the same page. Dr. S. explains the gum-line decay by the statement that "the putrefaction of starchy matter produces lactic acid." So it does, often, and under other circumstances the result is acetic acid, and these are the two acids which, in their nascent state, are capable of completely dissolving all of the constituents of tooth substance.

Dr. Wright, p. 233, thought "statistics would show that the ratio of decay in the valleys is greater than in the mountainous regions." This is probably true; and, if so, we have here a "definite" *predisposing* cause of caries.

The feeling of big "I" and little "u" is well illustrated on page 235: "Strangers seeing a large, strong man will say, 'He is from Kentucky,'" yet our military statistics show that in several States the men are larger than in Kentucky.

Many men have confidence in their tongues, and are, consequently, not afraid to "speak out in meeting." Dr. L., p. 235, has confidence in the tasting powers of his. "If there is any acid in the mouth, its presence should be made apparent to my tongue." But he could not taste silicic acid, even if his mouth were filled with it. "The tongue is an unruly member," but it is not sharp on the acid question. He can find his questions in reference to nitric, hydrochloric, and lactic acids answered in the appendix to Taft's *Operative Dentistry*, third edition. But he would better stick to his "piece" on crystal gold; for he knows it, and his gold is not nascent by the time he gets it crystallized; still he knew more of the "nascent state," after the explanation by Dr. K., on page 236.

Dr. C. is "convinced that lateral motion of teeth, at points of contact, often produces decay." How? By mechanical abrasion? or fracture of the enamel? If so, the "lateral motion," though a "definite" cause, can be classed only under the head of predisposing agencies.

Dr. C., p. 237, says the brown decay (hydrochloric acid) "goes straight for the pulp." This is true, but not more so than if the statement were made about white decay. Dr. C. has clearer views of caries than most of those expressing themselves thus far. But the penetrating character of white decay has

caused many to favor the organic (bug) theory of dental caries. But when it is remembered that the immediate agent in this variety is nitric acid, formed by the oxidation of ammonia, and that ammonia is always one of the results of the putrefaction of organic matter containing nitrogen and hydrogen, we can not see how it can be otherwise than penetrating. For, though nitric acid acts with energy on all the constituents of tooth substance, it dissolves the lime-salts more rapidly than it does the organic matter. The lime salts being removed, the organic layer putrefies, ammonia results, this is oxidized, nitric acid is formed, which dissolves out more lime-salts, exposing a fresh layer of the organic tissue to putrefy, form ammonia, to be oxidized into nitric acid, to dissolve more lime-salts, and so, on and on, till the pulp is reached.

Nitric acid thus formed is acid as soon as the requisite proportion of oxygen has combined with nitrogen; and Liebig tells us this process always takes place when ammonia is exposed to oxygen not already combined. And we should bear in mind that it is formed in contact with substances for which it has strong affinities, and that, atom by atom, it is neutralized, as fast as formed, by combining with some or all the materials composing the tooth. So, instead of being tasted by the tongue of Dr. L., it will not be found as free nitric acid, even by chemical analysis. The proper way to trace it is by its tracks. Look for nitrates, and the search will be successful. An aged Indian chief had adopted a white prisoner as a substitute for his young brother. The chief was sick with rheumatism, the white brother was not an expert huntsman. When threatened with starvation, they started out, and soon found some fresh tracks of a buffalo. The old chief followed on with great caution. He feared a member of a hostile tribe had fastened the feet of a dead buffalo to his own, to lead them into danger. After a time they found a deposit on the snow, so fresh that it was still smoking. He said to his young brother, "*That* not the track of a Wyandot," and then rushed boldly on, and secured the game. If this homely anecdote shall have an influence to lead investigators to watch for the *reactions* rather than the *reagents*, in studying the chemistry of caries, we shall not begrudge the space it occupies.

Dr. Talbot, p. 238, draws a nice and judicious distinction between antiseptics and disinfectants. This can be readily remem-

bered by regarding antiseptics as smell-preventers, while disinfectants are smell-destroyers. Still, carbolic acid is, to a certain extent, a disinfectant, even though it cannot deodorize sulphuretted hydrogen; for it combines more or less readily with ammonia, which is one of the offensive results of putrefaction.

Dr. Van Antwerp, p. 239, recalls attention to the digestive properties of the papaw. He finds the leaves better than the rind of the fruit. Did he take the rind from ripe or unripe fruit? Answer in JOURNAL. And has any one tried the inside bark of the tree? Try it, and report through the JOURNAL. Dr. Van states also that he has not been able to get the digestive principle in an alcoholic solution. It may not be soluble in alcohol; but may it not be that the alcohol, by coagulating the tissue, makes it more difficult to digest? Try it in glycerine. But try fluid extracts from the bark, the leaves, the rind of ripe, and of unripe, fruit. Try it on foetid ulcers, and similar cases in general surgery, and report through the JOURNAL. Do, now! We would, if able to practice.

Dr. French, p. 242, opposes the application of arsenious acid to exposed pulps. It seemed to him like pushing a drowning man into deeper water. He would rather fail in treating pulps without than with arsenic, if he must fail. He criticised the caution given about following the suggestions of theorists. If we do not accept theories, he thought we would not make progress. As arsenious acid is very likely to be abused, we regard these remarks as timely and appropriate.

Dr. Berry regarded its use as almost a necessity, in view of the sufferings of the patient while waiting for the slow action of other means of relief.

And following this, we have an illustration of what is lost by absentees. Beside the illustrated lecture of Professor Taft, Drs. Brophy, Talbot, and others, demonstrated their modes of filling teeth with non-cohesive foil, which the report cannot give us, to say nothing of Dr. L. on crystal gold; but we doubt not Dr. L. will be willing to repeat his remarks next year, for those of us who were absent.

HE READ THE EPISTLE.

OUR "F. M." correspondence, showing the sad career but triumphant outcome of Mr. Hypothetical, or something else, has

caused our worthy and talented friend, Dr. Metcalf, to remake his resolution which lay for a year on the table of the Michigan State Dental Society. The preambles and resolution are now as follows:

“WHEREAS, That part of our practice known as mechanical dentistry, when so conducted as to give to patients the highest attainable results, has become so intricate and complicated that it can not be properly learned in the time now devoted to the teaching of it in our Dental Colleges; and

“WHEREAS, In consequence of the insufficient instructions now given, it tends to cheapen, belittle and degrade it; therefore,

“Resolved, That the officers of the Association and the visitors to the Dental Department of the University of Michigan are hereby instructed to make all proper efforts to have mechanical dentistry taught as a distinct calling, and when students have become proficient in its various departments, that they be entitled to receive a certificate of qualification to practice it, regardless of their qualification to practice dental surgery.”

Like its predecessor, it, too, lies on the table;

And may dreams of delight overshadow its rest,
And whispers of angels bewreath it with smiles.

HOW TO SPELL.

MR. EDITOR: Tell me why Colonel
Is spelled in a way so infolonel?

Shed one ray of light

On a sorrowful wight

Who for years has subscribed for the Jolonel.

—*Boston Journal.*

In a big Yankee town they call Worcester,

A boy had a hen and a rorcester:

He kept the hen tied

The rorcester beside,

But whenever she cackled he lorcest'er.

DISSOLUTION.

From a circular signed by Dr. N. W. Williams, and dated Geneva, March 18, 1882, it seems that Drs. Williams and Blount no longer practice in partnership, and that Dr. W. continues the office and collects the accounts of the late firm.

We have no particulars and are a little slow in laying this

before our readers, partly because the circular was not promptly received, and partly because it is printed in French, and, therefore, it took us quite a while to read it.

NEW DEPARTURE IN DENTAL EDUCATION.

DENTISTS may be fairly educated by several processes. There is, however, a restlessness in reference to dental education that promises good results. In general, the profession is honest. Honest men striving in concert for the best are likely to approximate if not reach it.

A new measure is suggested in Chicago—in Chicago, of course, where they undertake to make their river flow up-stream. Each student is to take a full medical course, and receive the degree of M. D., in any reputable medical school he may choose. Then, he is to receive special dental instruction from a practical dentist, a member of the medical faculty, and to be taught, theoretically and practically, in a dental hospital, all the departments of dentistry, the hospital to be thoroughly equipped, and large enough to fully accommodate both patients and pupils. If we catch the true idea, it is not totally unlike the course pursued in Great Britain, and, if so, the experiment is not totally new. We wish it abundant success.

NOT PLAGIARY.

THE JOURNAL has already alluded to the principle that great minds naturally clothe their thoughts with similarity of language so striking as to excite suspicion. Suspicion, in such cases, is often very unjust. The JOURNAL takes pleasure in rectifying such wrongs, usually perpetrated by lewd fellows of the baser sort.

A case in point is before us: Some members of "our glorious profession," associated together for literary and scientific purposes, yet anonymous, have been addressed as follows: "He who adequately presents us with the statement of the processes by which the unseen breath becomes the cognizable blood and all its derivatives, in tissues with predominance and subdominance of mineral, vegetable, animal, and human characteristics, will be the apostle of the revelation of involution of evolution, sustenance and destruction of all the bodies that depend for their maintenance upon

food. Now, my dear Yankee boys, this is the text for you to work out, and crown yourselves legitimately 'Sons of the East—Sons of Light'—*Real Illuminati*.

"Ever the same,

*****."

We were almost sure we had read something like this before, and to find it we began a careful perusal of the Bagdad edition of the works of Benjamin Beryl Blynx, and after reaching Volume XI, page 497, bottom paragraph, we find that Blynx has given us the following, at the close of an address to the city council of Bagdad: "He who adequatistically presents us with a statumentary attestation of the progresses by which the inaudible sound of an unheard noise becomes cognomystical music in all its derivativities in sounds, with predominationeries and subdoministitudes of mineral, vegetable, animal, human, and assinine characteristicisms, who will be the apostle of epistolation of revelation of involution of evolution of commination of destruciverous animalculi depending on maintenance for food. And now, my dear Bagdaddies, this is the textulum for you to solve, and crown yourselves as the daddies of the East—Dads of Thunder—real rip-roarers.

"Ever the same, and often more so.

BLYNX."

Blynx, Benjamin Beryl, as aforesaid, lived near the close of the twelfth century; and as seven centuries have elapsed before we have another mind capable of such sublime utterances, we may expect, and indeed we hope, that a like period will elapse before such another can make his appearance.

Compilations.

"Gather up the Fragments."

FILLING TEETH WITH COHESIVE FOIL.

BY E. G. BETTY, D. D. S.

(Read before the Mississippi Valley Dental Society, March 2, 1882.)

MR. PRESIDENT:—Your Executive Committee has seen fit to honor me with an appointment among the essayists upon the programme, and while I deem it the duty of every member to contribute towards the general fund, I am, nevertheless, of the

opinion that an older and more experienced head should have been selected to execute the task relegated to me.

Besides this, the subject-matter is one that few are now fain to write about; not that it is difficult at all, but from the fact that it has been so belabored and rehashed that the average dentist turns up his nose in disgust, when the very name is mentioned.

It is, however, a subject of more practical importance to the dentist than any other usually discussed at meetings such as this, and one that is more talked about, and least understood. From the very nature of things, it becomes almost impossible to treat of it, without the remarks degenerating into a mere description of individual methods at the chair. Each and every one of us is apt to consider his own peculiar method of operating as the *ne plus ultra* of professional attainment, and cannot understand why it is that his ideas are not at once adopted by the profession at large. The attempt, then, upon the part of one whose experience is of "tender years," to correct what he deems hurtful to the efficiency of an operator, would seem to imply an egotism that does not exist.

Were all writers and speakers to cease advancing their ideas for fear of incurring the charge of egotism, an Egyptian darkness would soon obscure all that is bright, progressive and useful.

Thus it is that a hesitation is felt in approaching a subject that contains nothing in the nature of news, and a great deal upon which a reputation is either made or wrecked.

So diverse and deeply rooted are opinions and methods of procedure that one can scarcely hope to bring out of the existing chaos anything bearing the semblance of uniformity, in the handling of material for filling.

The several men of note in the profession, whose modes of operating might be mentioned in illustration of this point, all have more or less experience in their particular lines, and are looked upon by their followers as standard authority. They expound their methods in the journals and at society meetings, and are applauded just in proportion as they harmonize with the views of their auditors. Each advocates some one or other specific method of manipulation, or brand of material to use, and are the means of doing much good, or incalculable harm, when they are measured by the results that obtain.

It is not the present purpose to enter into detailed specifications as to how a filling should be built, nor to advertise in an indirect way any particular make of foil.

We all have a more or less correct idea as to what is necessary to do in the operation we call filling. With the *idea*, however, we have less to do than with the *manner* in which the work is done, and the form of material with which it is accomplished.

The slouch leaves his disgraceful mark upon every tooth he touches, and deludes not only his patients, but himself as well, that the work is done in a masterly fashion. He prates loudly in the meetings, talks with grace and apparent candor: is at great pains to heartily coincide with any really good operator who happens to describe a fine operation, and remarks "that is just the way I do." Possibly, but when you come to analyze him by the evidence of his handiwork, the proof is plain that his conception of what he has heard is limited by his meager powers of execution. For this reason it avails but little how much stress is laid upon the importance of this, that, or the other step in an operation.

There is a kind of conservative, who is frequently "too utterly utter," and manages to preserve so much of a decayed tooth that there is no room for the introduction of a filling worthy of the name. In fact, he is guided by the direction the decay has taken, and has not the courage to deviate from that course. The cavity and its walls are prepared by the decay, and with such a preparation for filling, we necessarily are not surprised to see it stuffed with cylinders of soft foil, or a bolus of seductive crystal gold. Such plugs, of course, are not calculated either to save the tooth or subserve the purposes of the destroyed portions. They can have no integrity in themselves, and certainly do not obtain any by catalytic action from the teeth containing them. Undoubtedly, a decayed tooth, if left alone, will surely be annihilated. What folly, then, to tinker and fiddle around, trying to save every crumb of tooth-structure that does not happen to be actually saturated with rottenness.

The tooth is sick—sick unto death; part of its structure is obliterated, and if radical measures are not at once adopted, there remains no hope for its salvation. Chisel and file should be unsparingly used until every advantage possible is gained, by put-

ting into proper shape the remainder of the tooth. None but the timorous hesitate to cut away sound tooth substance, when by so doing direct access and vision into the cavity may be had, and every advantage secured to make the filling as it *ought* to be made. *Everything in the way of excavation that will add to the ease and thoroughness of the introduction of the gold, will proportionately increase the preserving power of the plug.* The operator who is conscious of an ability to restore lost parts with foil, will see the necessity of a radical excavation of the tooth he is about to redeem. The more solid parts of the tooth are the ones upon or in which to make anchorages. If one or two strong parts remain, they will ordinarily be sufficient foundation upon which to restore lost parts, and also obtain protection for themselves.

The details of grooves, dovetails, angles and retaining-pits, have been reiterated so frequently that mere mention of them will suffice.

There remains, now, to consider the form of gold to be used. If but two walls are standing, or the subject for restoration is a mere root, soft foil, in any shape, is out of the question. Our hope, then, rests upon what is known as cohesive foil. And right here is one of the most stubbornly contested points we are expected to pass upon. The number of brands is legion, further multiplied by the number of weights made, and the infinite variety of forms in which the foil is prepared for use. All forms of blocks, cylinders, pellets, ropes and ribbons, are simply foil with another name. To make a selection, then, of the form of foil that will secure the best results, involves a study of the requirements that are to be met. The foil, when introduced, should maintain a permanent integrity in spite of all causes militating against it. This permanent integrity includes, of course, indestructibility, hardness, tenacity and cohesion, for if one or other of these elements were abstracted no plug would remain intact.

All forms of foil possess some one or more of these qualities, but they greatly differ in the degree, and it is for this reason that a discriminating intelligence must be exercised in determining what form possesses all these attributes in the highest perfection.

The metal, gold, has certain properties that never desert it, no matter what shape it is worked into; as, for instance, color, specific gravity, thermal and electric conductivity, etc. With these, how-

ever, we have nothing to do, as they are ever present, and are conditions and susceptibilities beyond our control. It is the more mechanical properties that concern us most, they being the ones we can modify to some extent to suit our wishes.

The molecular force, cohesion, exerts a greater influence over the results of our operations than any other property of gold, and is *the* one upon which the whole system of filling depends, having, in fact, only a few years ago, caused a complete revolution in applied dental science. If studied closely, it is not difficult to trace to cohesion the hardness, tenacity, ductility, malleability, etc., of the gold as a metal, and when in the form of a plug its integrity, indestructibility and preserving power. This, then, is the prime factor that must determine us in the selection of the form and weight of foil with which to construct our fillings.

Granting the premise, it may be laid down as a principle that *the fewer the surfaces brought together the greater will be the resisting power of the mass*. Experience has proved this to be a fact in many departments of industrial pursuits, and why not in dentistry as well?

With this principle in view, we may at once dismiss all forms of crystal gold, their granular nature multiplying indefinitely the number of surfaces to be united. At all events, that form of gold cannot be included under the term foil.

To put our principle into practice, implies an increase in the thickness, and, consequently, of the weight of the foil that is to be used. It may be charged in this connection that, assuming the necessity of fewer surfaces to weld, the foil may be augmented in weight and thickness to an unlimited degree.

Very true; but it must not be forgotten that beyond a certain point we would lose a very important property, indispensable to the preserving power of the foil; namely, adaptability. We must, then, adopt a medium weight, one that will combine the advantage of a reduced number of surfaces with an easy adaptability. These are best had, in all probability, in that foil called number sixty. This weight in the estimation of a great many operators, possesses in the most eminent degree a combination of all the qualities necessary for a perfect filling. A single strip of it is equal in weight to a pellet or block made of number two foil folded thirty times, or a block of number four folded fifteen times.

The block of number two has sixty surfaces to be welded ; that of number four has thirty. Each layer of this light foil is weak just in proportion to its tenuity, its little strength still further reduced by the strain necessary to keep in contact its sixty or thirty surfaces. How much further the cohesion of a plug made of this foil is reduced when the contact surfaces are multiplied an hundred fold !

The same is true of plugs made of ribbons or ropes of light foil. No wonder, then, that fillings made of light numbers crumble under the plugger and disappear when subjected to the crunching process of mastication. As a means of restoring lost structure, especially contouring, they are of little value, soon losing their cohesion and disintegrating in consequence. In bold contrast with them stands the reliable heavy-weight. It has but two surfaces to weld together ; its bulk is reduced to a fraction ; it will stand as much malleting as the tooth, without losing its receiving surface ; it is hard and tough to the last degree, and will wear for years, all the while maintaining its solidity and outline uninjured.

Believing that more good is accomplished by a radical excavation of cavities and the use of a foil that *is* foil, the hope is expressed that it will come into general use. We will then hear less complaint about imperfect cervical joints, broken corners, and the whole list of calamities that usually attend the performances with æsthetic forms of gold.—*Dental Register*.

Societies.

“ Wherewith one may edify another.”

PENNSYLVANIA STATE DENTAL SOCIETY.

THE fourteenth annual meeting of this Society will be held in Williamsport, Pa., July 26, at ten o'clock A. M. Session will continue for three days.

Dentists having special cases available either in operative, mechanical or surgical clinics, will please inform the committee of it at once.

Persons having inventions or improvements that are of interest to the profession will notify the committee, who will make arrangements to have them properly exhibited. A full programme will be published hereafter.

G. W. KLUMP,
Chairman of Com., Williamsport, Pa.

THE Kentucky State Dental Association will hold its annual meeting in Louisville, commencing Tuesday, June 6, 1882, at the rooms of the Polytechnic Society. Dentists of Kentucky and neighboring States are cordially invited to attend.

CHAS. E. DUNN, Secretary.

INDIANA STATE DENTAL ASSOCIATION.

THE annual meeting of the Indiana State Dental Association will be held in the city of Indianapolis, the last Tuesday in June. All its members, members of other dental associations, and all practitioners of dentistry and medicine are cordially invited to attend.

J. B. MORRISON, Indianapolis,
Chairman of Ex. Committee.

KANSAS STATE DENTAL SOCIETY.

The annual meeting of this Society, held last week at Topeka, proved a very interesting occasion, and the attendance better than usual, but not as good as it ought to have been. Essays were read upon the following subjects: "The Question of Utility in Dental Education," by Dr. A. H. Thompson; "Odd Hours," by Dr. L. P. Meredith; "Porcelain Crowns," by Dr. W. H. Shulze; "Tin and Gold Combination Fillings" by Dr. A. H. Thompson; "Some Qualifications of the 'Ideal Dentist,'" by Dr. J. D. Patterson.

J. D. PATTERSON, Secretary.

May 11, 1882.

Books and Pamphlets.

"Of making many books there is no end."

MANUAL OF DENTAL SURGERY AND PATHOLOGY, by ALFRED COLEMAN, L. R. C. P., etc., etc. Thoroughly revised and adapted to the use of American students and practitioners, by THOMAS C. STELLWAGEN, M. A., M. D., D. D. S., Professor of Physiology at the Philadelphia Dental College. Henry C. Lea's Son & Co., Publishers; also for sale by RANSOM & RANDOLPH, Toledo, Ohio.

THIS is a neatly gotten up and well printed volume of 398 pages, exclusive of a carefully prepared index. The matter added by the American editor amounts to about one hundred pages, and is embraced by brackets. The work consists of twenty-three chapters, the first beginning with first dentition, and the last discussing "Nervous and Muscular Affections dependent upon Dental Irritation."

Though the author acknowledges himself to be "under heavy obligations to Mr. E. Harrison, barrister-at-law, for his kindness in undertaking the tedious and uninteresting work of revising my [his] pages," yet many little inelegancies have crept into the composition, which in the main, however, is good. A single specimen will show what is meant: On page 324, second paragraph, we have: "It can not be stated for certain how nitrous oxide produces its anæsthetic effects; there can, however, be little doubt but that it is not owing to its decomposition in the lungs." Now that sentence would be every way better if the but were taken out of it, as really as a reformed ram is a better sheep from having had the *butt* taken out of him. (As the mistake is a common one, we use the homely ram illustration to impress it on the memories of young writers.)

We have not read the book throughout, but have read carefully as far as we have perused it. With very much, perhaps we might say nearly all, of its sentiment we cordially agree. In some places, however, we find lack of clearness, as well as a failure to be "up with the times" in reference to the attainments of dental science. "A quarter of a century behind the times" is a hackneyed phrase, almost worn out, indeed, by indiscriminate use; yet in view of the fact the specific agents, the immediate

exciting causes of dental caries were clearly defined, their actions explained, and their sources traced, as early as in 1856, the phrase is well worthy of renewal that it may be applied to Chapter VI of this work. Had the author tried to confuse the student, and leave him in doubt and darkness, he could have prepared nothing better for his purpose.

Chapters VIII and IX, on the Treatment of Dental Caries, are clear and instructive, leaving room for differences of opinion, as they should. Chapter VII, on Selection of Instruments, is by the editor, and is good.

Chapter XVI is devoted to Anæsthesia, and is a fair average of thought on the subject. The author would do well to carefully study the physiology of respiration in time to prepare his next edition, and he would thus be enabled to make good, better. We will notice but a single point. In speaking of nitrous oxide, he says, p. 325: "The appearances of the patient inhaling it are those which are manifested when the blood in the arteries and capillaries assume a venous character." Very many writers hold the same views, yet we have always claimed that when there is darkening during the administration of nitrous oxide, the gas is impure, or the patient is smothered. We have used it daily, often many times in a day, for months, without seeing the slightest symptom of defective aeration of the blood.

We are glad that the author regards the "Fatal Case at Exeter" as most likely not chargeable to nitrous oxide. We wrote an article for the *Dental Cosmos*, in which we think we made it clear that death was due to *nitric* oxide.

Taken as a whole, the book is valuable; and if by pointing out, in a friendly manner, these slight defects, we shall be instrumental in preventing their reproduction in the next edition, good feeling all around should prevail.

The American editor has worked with a will, and should have credit accordingly. We hope he will erase a brief bracket from the top of page 268. The key as an extracting instrument is spoken of, and the author refers to the resulting injury to the gum. The editor comes to the defense of the key, stating, "Some operators were, however, quite expert in its use, by placing the fulcrum upon the tooth, and thus avoiding the injury to the gum." We met some of these quite expert fellows in the early days of our practice. Many of them were so expert that, on the

same principle, they could take hold of the slack of their trousers, and lift themselves over a ditch. The two operations involve the same principles of philosophy.

The book should be in the library of every practitioner.

THE SOUTHERN DENTAL JOURNAL, edited by B. H. Catching, D. D. S.
Published monthly by R. A. Halliday, Atlanta, Georgia. \$2.00 in advance.

WE failed to notice this new claimant for professional favor because it failed, through oversight, to reach us. We are glad to receive it as an exchange. It is well printed on good paper, contains forty-four pages of reading matter, under the headings of "Original Articles," "Selected Articles," and "Editorial Notes." The three numbers before us contain a pleasant variety of matter; and to show that it is human, like us all, it sometimes forgets to credit its selected articles, as in the case of Dr. Siddall's "Struggle with Chloroform," it fails to recognize either Dr. S. or the JOURNAL. But that's the way we do, sometimes.

CIVILIZATION IN ITS RELATION TO THE DECAY OF THE TEETH;
An essay read before the International Medical Congress, August, 1881. By
Norman W. Kingsley, M. D. S., D. D. S., etc., etc. With the compliments
of the author.

THOUGH in the main well written, we have read this essay with some disappointment. It apparently assumes that which needs proof, and the arguments from the assumptions are not always conclusive. The paper has been carefully prepared, and will be regarded as a special providence by all who think the whole human race is going rapidly to the "demnition bow-wows." We do not believe that decay of the teeth is increased by civilization, nor that dental caries is more prevalent than in former generations. In this community, and it is a good average of civilization, the mothers who are nursing babes have better teeth than had their mothers or grandmothers when they were occupied in a similar way. The essay is quite readable, and well repays perusal, notwithstanding its defects.

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Contributions.

“A word fitly spoken is like apples of gold”—SOLOMON.

INCREDULITY AS TO METALLIC POISONING.

BY A PHYSICIAN.

Now and then a painter, after his wrist begins to drop, will admit that he is a victim of metallic poison. At earlier stages of his disease, he usually explains his aches and pains by a reference to errors in diet, or by the statement that he has “taken cold.” He will admit the general fact of metallic poisoning, especially lead poisoning; but in all cases somebody else is the victim. Those who are careless, and permit paints to saturate their clothing are likely to be poisoned, but he—not he, poisoned! He is neat and cleanly. And thus he is carried along by his incredulity till his constitution is hopelessly ruined.

The printer, too, will consult his family physician, and will complain of colic, which he imputes to indigestion; or he will speak of his neuralgias, and blame the weather for them; and the physician usually must agree with him, or he will be superseded by another. The physician calls his attention to the paleness of his face, and he says that it is due to confinement within doors. The physician suggests that his pallor is not like that of

the student or salesman, and he imputes the difference to the presence of printers' ink, which is not easily washed from the pores of the skin after having been ground in by friction.

So it is with the gilder, the plater, the plumber, etc. Each will admit that it is barely possible that others may be poisoned by contact with, or inhalation of, metallic compounds; but he is necessarily exempt. He is prudent; he washes his hands and face, changes his clothes, and thus gives the objectionable metals, or metallic compounds, no possible chance to harm him. Such is the incredulity of the victims, and that of the careless observer is quite as well marked.

The *Chicago Specimen* may be taken as a mouthpiece to give expression to the sentiment of the average observer, who is, however, unworthy the title of observer. It says: "Years ago there was a notion prevalent among those who were but partially informed upon the question that the printing business was essentially detrimental to health. There was a tradition about the absorption of poison from the constituents of which type metal was composed. This was and is true in so far as it asserts the poisonous nature of some of the constituent parts of type metal; but that these metals should be necessarily absorbed into the system of one who handles type is simply absurd. Printers who have such habits of cleanliness and sobriety as a decent respect for one's self and the opinion of others might be expected to dictate, may follow their calling for years without experiencing any further damaging effects upon their health than what will result from close application to any sort of hard work. More 'poison' is absorbed by the printer when taking observations of his little finger through the bottom of a glass than in any other way."

The above is perhaps a very fair expression of quite prevalent sentiment on the subject; yet it would be difficult to crowd more fallacy into a space so limited. "Close application to any sort of hard work" may impair the health of the worker, but let us suppose he is a tailor, a cabinet maker, a cooper; close application and hard work at any of these occupations will utterly fail to give the pallor peculiar to veteran printers, to say nothing of their other morbid symptoms, which are as clearly marked as the complexion. True, cleanliness and sobriety will do much to

preserve the health of the printer, and the statement is equally true as to those engaged in other callings; but most constitutions yield, sooner or later, to the troubles peculiar to printers, if they continue to handle the types. We have heard the charge of absurdity before; but the question is not, Is it absurd? but, Is it true? Taking a little piece of type metal between the thumb and finger is but a small affair. Not much surface of the skin is exposed to metallic contact, it is true; but it will not do to despise "the day of small things." A drop of water is a small thing; for it to fall on your head would be a trifling circumstance. Yet, if so confined that a drop would fall on your head once a minute, you would, in process of time, suffer the most excruciating agony. And if not rescued, you might as well have a millstone about your neck, and be cast into the sea. But the touch of the fingers is not likely the leading mode of introducing the poison into the system of printers. The types are more or less corroded by the ink and water brought in contact with them. When vapors arise from them, minute particles of the corroded metals rise with them, and are inhaled; and, as the mucous membrane is more permeable than the skin, they can readily reach the circulation. Let the process be as it may, the fact that printers are poisoned by something, and that their condition differs from that of the ordinary laborer, is a fact too plainly indicated, to be overlooked, and it is not necessary to insult the whole craft by the insinuation that their poison comes from the wine-glass. The worst cases we have ever seen were in parties who were rigidly temperate.

From observations made with tolerably fair opportunities, we incline to think that this incredulity is found also with dentists and their patients in reference to mercurial poisoning. Amalgam fillings are very extensively used, and it is argued that, if there were danger of poisoning from this source, cases demonstrating the danger would be so abundant, and so well defined, that we might run while reading them. This is somewhat plausible. But are a large majority of dentists so familiar with the various and manifold forms of mercurial diseases that they can be relied on in diagnosis? It is hoped they are; but our attention was lately called to a case of mercurial disease, as reported in a dental journal, which was supposed to have originated from mercury

used in dental operations, and a well known dentist reports a worse case following the wearing of a gold plate, by way of expressing his disbelief that mercury caused the one; or else he is teaching that gold is as poisonous as mercury, which may be true, only that it has not such strong affinities; or possibly the remark is made by way of dodging the issue.

That not many cases of metallic poisoning are reported, as resulting from mercurial fillings, may result from a lack of careful observation. Very many cases of obscure diseases of the nervous system and of the mucuous membranes and glandular structures are now puzzling and annoying the medical profession, in some of which we suspect the influence of mercury, but the patients tell us they have taken no mercurial medicines; and if we refer to the mercury in their teeth, the dentists assure us that it is not possible for patients to be poisoned from this source; and thus we are at sea again.

If one were to take the position that there is and can be no mercurial poisoning, if a good disputant, he could give those with opposite sentiments much to think about; for mercurial medicines are prescribed and administered many thousands of times without any serious results. He would have decided advantage, in the way of assistance, from the fact that he could draw largely on the sayings and writings of those dentists who earnestly defend the use of amalgam fillings.

When the facts in reference to amalgam fillings are properly weighed, it can not seem strange to the physician that mercurial trouble may arise from this source. Often several large plugs are seen in the same mouth. The editor of the *Ohio Journal of Dental Science* reports having seen seventeen mercurial fillings in the mouth of a young lady. Let it be assumed that these contained forty grains of mercury; they were equal in power, latent and active, to about forty officinal blue pills.

It is probable that mercury and other metals are inert in their metallic state; but who can give reliable security that it shall retain its metallic state within the mouth? It vaporizes at common temperatures, and this greatly facilitates combination with other agents, as its surface is thereby greatly increased. The vapor will always find oxygen and chlorine ready to unite with it; and its most active compounds are results of such com-

binations. The elements already mentioned and sulphur are the principal agents found in the mouth to act on it; and by the action of any one or all of these—for they all take portions of it, when present—the mercury can be introduced into the system, but very slowly; so slowly, indeed, that it is confidently claimed that no evil can result from such introduction; but this very slowness is all the surer index of danger, as is illustrated by a case reported by Scheele, in which a man had a few drachms of mercury enclosed in a leathern bag suspended from his neck. One side of the bag lay in contact with the man's breast, and it is evident that the mercury could make but very slow progress into his system from this source, yet he was poisoned to death within six years. We have known very large quantities of amalgam fillings to be worn in the mouth longer than this, and sometimes we have had the care of such patients when fully convinced that we had to treat the results of mercurial poisoning.

As the buccal fluids always contain soluble chlorides, it is probable that if ever poisoning results from amalgam fillings, it is due to the formation of corrosive-sublimate from the mercury contained in them. If twenty grains of mercury within the mouth were changed, slowly or otherwise, into corrosive-sublimate, about twenty-seven grains of the salt would result. This really seems to be quite a quantity, in view of the fact that the dose of it for adults is from one-sixteenth to one-eighth of a grain, and that one-fourth of a grain is apt to violently gripe and purge.

At all events, we have seen several well-marked cases of mercurial disease, where we could find no explanation of the cause unless from mercury in the teeth; and we have the testimony of a goodly number of dentists who are men of good judgment and close observation, bearing witness in the same direction. That many dentists have seen nothing of the kind may be explained in two ways: In a large majority of cases where such fillings are used no very decided impressions are made, and when men believe certain events can not occur, they are not likely to watch for them. It is possible, too, that many dentists are not well versed in special pathology, and might, therefore, fail to recognize such disease, even when present. Negative testimony, however, can not set aside that which is

positive. If dentists, competent to decide, tell us they have seen well-marked cases of mercurial disease resulting from amalgam fillings, we naturally believe them, even though many other dentists tell us they have not seen such cases. And this all the more in view of the fact that it is universally conceded that the compounds of mercury are poisonous.

We are not surprised at the incredulity here, for it is in accordance with that manifested in regard to all slow-poisoning from metallic compounds.

AN INFLUENCE OF DENTAL ASSOCIATIONS.

BY SENEX, CINCINNATI, OHIO.

IN the earlier years of our connection with the dental profession we found the brethren east and west almost wholly ignorant of each other and their surroundings. While each was well acquainted with his own environment (Joseph Cook), he was quite unable to estimate that of his distant brother. Our societies have done much to improve this state of affairs. The younger members of our profession have no idea that such a condition could be possible, and, therefore, we shall mention a few illustrative incidents before our witnesses are all dead. Enough are yet left of our older men to contradict, if we make a misstatement.

The old American Dental Society, the first dental association that ever existed, was to meet in Cincinnati in the Summer of 1854. The President, who resided in Philadelphia, postponed the meeting till the following May, giving as a reason that the Ohio river was too low for the passage of steamboats from Pittsburgh to Cincinnati, and that it was unreasonable to expect the eastern members, who constituted a majority, to travel by stage from the one city to the other. But he felt that the river might be safely trusted for the month of May. It is strange, but true, that he was ignorant of the fact that Cincinnati could be reached by rail at that date.

In 1856 we went to the meeting of the American Dental Convention at New York, by way of Philadelphia. Then

'Camden and Amboy' owned the State of New Jersey, and the C. & A. Railway coaches were narrow, low, without racks, with seats so close that our knee-caps were bruised almost constantly. A good Philadelphia dentist said, "You don't ride in such cars at home, I suppose?" and we gave a negative reply. Then he began to eulogize the Camden and Amboy Company, when we interrupted him to explain that we had thought he was inclined to apologize for those dilapidated cars. "Why no," said he, "you really can't have anything so fine in the West." We told him to come to Cleveland, and there get a German emigrant's suit, buy a second-class ticket to Cincinnati, and if he was not put into a car every way more comfortable, we would entertain him during his visit, and return him in a first-class car.

The day before, this same dentist had boasted of the excellency of the Philadelphia fire companies. Very soon we passed a square burned vacant, and not yet in rebuilding. We suggested that was too large a hole, and told him if a stable was burned in Cincinnati it was common to save a part of the hay. (At that day Philadelphia had no steam fire engines.) He very properly charged us with boasting. Two days afterward, in New York, we showed him the account of a stable burned at the Cincinnati horse market, which stated that most of the loose hay was burned, but that which was in bales was saved. By attending the meetings of the American Dental Association West, as well as East, this man's eyes were opened.

In 1866 a venerable and well known dentist wished an opportunity for an interview with us. We retired to a corner of the room in which the Association had met, when he said he wished to talk of a matter very important to the profession; and, "of course," said he, "living so far West you will not understand it till I explain." Then he began to tell us that in warm climates there was a tree from which a very peculiar material was obtained. It was elastic, but could be hardened, and this process of hardening is called vulcanizing, and it is getting to be used in dentistry. And thus he was endeavoring to introduce us to the Josiah Bacon nuisance, supposing we had never heard of either rubber or Bacon. The President called for the report of the committee on something, and we, as chairman, had to respond, or we might have heard all about rubber.

The day immediately following, another dentist advised us to spend a few days with him, and he would teach us how to cure spongy disease of the gums. "Living so far West," said he, "of course you have no opportunity to learn such things." Living so far West *as Ohio* seemed to some of these brethren to be a barrier to anything like advanced thought.

The active young members of our profession at the present day can have no definite idea that in those early days the Eastern dentists could be so unacquainted with those of the West. The Western men knew the East better, only because in the East there was always something to attract them thither; but there was but little to attract Eastern dentists Westward, unless they were inclined to take the advice of Mr. Greeley. The American Dental Association, holding its meetings both West and East, and encouraging the formation of State Societies by its example, has done very much to break up the state of affairs indicated by a narration of incidents as above. We are probably better acquainted with each other than are the members of any other profession, and this is as it should be, for intimacy of acquaintance tends to suppress professional bickerings and jealousies. It is not in accordance with our nature to feel cross toward those with whom we associate under pleasant circumstances.

As doth the brilliant orb of day
The misty fogs efface,
So petty quarrels fade away
Before a smiling face.

FROM THE WEST.

BY MELVILLE C. KEITH, LINCOLN, NEBRASKA.

THE recent article in the *Dental Cosmos*, written by that eminent apostle of amalgam fillings, in support of the use of silver and spelter as preservatives of the teeth, demands more than a passing notice.

Dr. J. Foster Flagg asserts that amalgams are not injurious (that is his position), and that "many teeth have been saved that would otherwise have been lost." The latter statement may be true. The writer does not admit it. The former, that amalgams

are not injurious, is so manifestly at variance with the writer's experience that he deems it a duty to humanity to give his mite to controvert the unwarranted assertion.

The facts are, that an amalgam (usually in part) composed of Hg (mercury) and Zn (zinc), with the action of the saliva, or by the action of the saliva, forms in the teeth, in *the mouth*, a *constant battery*, directly affecting the entire nervous system, more especially the brain; and particularly the optic and aural nerves. Thus, while Dr. J. Foster Flagg is perfectly correct in asserting that "tons of amalgam" are being carried around in people's heads, he is not justified in using this fact as an argument for the use of this amalgam: because thousands of these victims suffer from weak eyes and partial deafness, caused from the direct or the indirect effect of this constant battery, formed of mercury, zinc and the buccal juice, and are entirely without suspicion as to the cause. This argument of "tons being carried about," so "overwhelming" in the eyes of Dr. J. Foster Flagg, resolves itself into the fact that thousands of people are ignorant, and *ergo*, there is no knowledge.

The writer has had occasion many scores of times to verify the assertion that all amalgams formed with mercury *are injurious to the nervous system*; and evidence is ready to be made public as to the continued ruinous effects upon the nerves, (as, for instance, atrophy in some cases, and hypertrophy in others,) directly produced by the amalgam fillings, as recommended by J. Foster Flagg, and he will find "the facts" "overwhelming" against his assertion that amalgams are not injurious. There is no proposition now to advance any special theory, but any one tolerably well versed in anatomy or the physiology of the nervous system, or who has read enough to know the meaning of Electrolysis, can easily understand that a most powerful disintegrating effect upon all tissues, (more especially, possibly, upon the white matter of Schwann,) can be produced by the combination of mercury, zinc, and the acids contained in the saliva. This is not a theory to be aired at the expense of ink and paper. It is a fact understood by every scientist, and a fact that Dr. J. Foster Flagg will do well to read up on before he attempts to sneer at the very able and instructive experiments of Dr. Talbot, of Chicago.

The writer, for one, is under obligation to the DENTAL JOUR-

NAL, of Ohio, for its well chosen stand against this destructive process of amalgam filling. "The facts are" that hundreds of dentists use amalgam for filling teeth, and do this without an idea of the misery and wretchedness they may inflict in the future upon their patients. And thousands of victims who are *weak-eyed* and *partially* deaf from the effect of these amalgam fillings in their teeth, would gladly change their silver-filled teeth for restored eyesight, and to regain their hearing, if such a transfer were possible. Dr. J. Foster Flagg's very elegant rehearsal of the "dead-cat-at-the-foot-of-the-grape-vine" story can doubtless be used by the little chaps who are ambitious of earning a dollar by "putting in" a silver filling, but to the public it shows Dr. J. Foster Flagg in the light of a mountebank. To the scientific readers of to-day the dead cat story reveals Dr. J. Foster Flagg as a man devoid of the commonest facts of electricity, physiology, or the correlation of forces. He stands out among his compeers as too ignorant to defend his "plastic filling" by the aid of chemistry or science, and is reduced to the last resort of an ill-natured, under-bred cab driver, flinging "dead cats" at those with whom he disagrees.

We might feel sorrow for the exposed, self-admitted ignorance of an American author, but we are indignant at the continued and increasing atrocities of this humanized amalgam battery. Hundreds of women suffer untold agonies from nervous spasms, from the effect of silver-filled teeth. Neuralgias, headaches, catarrh, "drooling," "dry mouth," "throat disease," and *general rottenness* of the buccal cavity, proceeds from this subtle and deceptive mercurial compound, stuffed into the teeth of men and women by the unscrupulous or the ignorant.

Let Dr. J. Foster Flagg step down and out. His day is past. Dead cats and grape vines cannot resuscitate his many-sided plastic and amalgam fillings. We advance. The world has tried the amalgam and found it wanting. The verdict of science will be, no more mercurial fillings.

The scientific of the medical profession will assist, and go forward with the advanced guard of their dental brethren.

We may not be able to impress the giant cells of Dr. J. Foster Flagg's cerebrum with the precise effect of Hg , Zn , $-\text{C}_2\text{H}_4\text{O}_2$ on the nervous tissues of his victims, but we can

enlighten the public so that Au and Ag will no longer flow into the side cavities inserted by his tailor.

No more mercurial fillings.

Editor's Specials.

"Write the Vision and make it plain."

ALMOST DOUBLE DOSING.

A SINGULAR coincidence, it seems, that two physicians should, in the same number of the JOURNAL, discuss the subject of metallic poisoning. "A Physician" discusses the general subject, while our correspondent from the West takes a special department of it. But such things often happen. Even crimes are epidemic, and why should not habits of thought be likewise? When Hood's happy couple thought there were burglars below, he tells us,

"One impulse moved both man and dame—
He seized the tongs, she seized the same."

But the JOURNAL is ever open for candid, honest discussion. It is not necessary that a writer's sentiments shall agree with those of the editor, nor will an honestly prepared, well written article be rejected, if it should happen to disapprove the use of an article for sale by our publishers. A clear field and a fair race, allowing all things to stand or fall on their merits or demerits, is the steady aim of the JOURNAL; and even though its sympathies may be with the "under dog in the fight," it is not intended that these shall at all warp the judgment.

OUR ARTICLE ON INEBRIETY.

THOUGH not agreeing fully with all the positions assumed in the article, we give it space, and ask for it an attentive reading by all who receive the JOURNAL. It discusses the most serious, and the most practical question now agitating the public mind. We view inebriety as both a disease and a vice, even though our author tells us it can not be both. But if a disease only, we would in the main treat it as other diseases, making our treatment

mainly prophylactic, on the principle alluded to by Dr. Wilson on Neuralgia, in June number, that "an ounce of prevention is better than a pound of cure." Just as we would endeavor to prevent the formation of *malaria* in a fight with autumnal fevers, so would we prevent the formation of alcohol in a combat with the widely spread disease, inebriety. A man has not passed many stages in the latter disease till he has reached paralysis of the will power. Then, to expect him to recover without help beyond himself, is to expect a paralyzed man, tied on a raft, to float up the stream in order to avoid the cataract. As no subject needs the light more than this one, we hope, as we started out, that all will carefully read the article.

IPSE DIXIT.

WE hate Latin, and are glad it is dead; and we hope "Sic Transit," and the fellow that "Nihil Fit," will soon die. But this is our complaint against "Ipse Dixit:"

It is fashionable, with a certain class, to assume that animals can not assimilate inorganic matter. We have never heard a particle of proof offered to sustain the assumption. We have known men to vehemently insist on its truthfulness, and yet prescribe metallic iron—iron from hydrogen—the same day. That hens assimilate lime from marble dust or stalactites, has been claimed, because the shells of the eggs are thickened by lime thus furnished in their food. Professor Truman gets over this fact by the statement, "The shells of eggs cannot be held in any sense as organized products." But that is *ipse dixit*, that is, *he says so*, but where is the proof? Can he make eggshells?

Men repeat this stereotyped heresy after each other, none waiting to think for himself. They prescribe iron without a thought that their prescription contradicts their theory. They administer lime, not caring if it comes from oyster shells or stalactites.

AMERICAN DENTAL ASSOCIATION.

As our August number will appear just at the time appointed for the next annual meeting of the Association, we feel impelled to say a few words about it in the present number. We had

given up all hope and expectation of attending another meeting of this Association, which has been so dear to our heart from the dawn of its existence. We tried to be content—didn't succeed. In half recumbent posture, with elbows propped, making fixed points of the shoulders, and straining for breath, yet getting but four and a half to six respirations a minute, Association week was a time of trial, a time of impatience because we could not be present. A change came, and in three months from the time it began, we had ten respirations; thoughts began to stir, the pen, so long idle, crawled back into the palsied fingers, the *JOURNAL* sprang into existence, the Association adjourned to meet in Cincinnati, and our nerves thrilled with delight at the thought that possibly we should once more see the Association—once more take the hands, once more gaze into the soul-windows of our brothers of the olden times. As the period approaches, all signs are watched, extra care is bestowed on the little health remaining, hopes and fears worry and chase each other, the heart's quick pulses vibrate at the thoughts of the coming bliss; then doubts drive almost to despair, and thus the days and nights are spent. What a wail from the heart of Moses, the Meek, when he said, "I pray thee, let me go over and see the good land!" May we have more than a Pisgah's view of the Association.

So many of our old friends will be there! So many whose faces will look familiar, but whose names we shall not be able to recall! A weakness which our friends must forgive. So many young men whom we have not seen, but love. And so many we have seen will not be there!

We can, from experience, advise others. And, brethren, especially those of you who are yet young, let no ordinary occurrence keep you away from the meetings of the Association. If you are true professional men, you will regret any such negligence, as surely as you live long enough to realize your lack of professional knowledge and skill. Let your attainments be as extensive and numerous as they may be, you will never know so much but that by free exchange of thought with your brethren you could have known more. And if you now, while comparatively young, find yourself inclined to neglect the important meetings, abandon the profession at once, for you have missed your calling, and by continuing in it, can scarcely fail to disgrace both it and yourself. By taking advantage of all that can be gained from

professional association, and by devoting three hours of each twenty-four to systematic, close study, you can keep from retrograding from your present position, possibly; but even thus you will not be able to keep up with professional progress. Just think, for a moment, of a single science: A bright, healthy, well-educated young man can not keep up with the progress of chemical science by devoting his entire time to its study, with all the aids he can muster into his service.

Go, therefore, to the next meeting of the Association, at Cincinnati, the first day of August, and you will be benefitted in proportion to the strength and sincerity of the efforts you make to hear and understand the valuable truths taught. It is true you may, as in former years, hear much that is vague and silly; but it is worth something to know how foolish some men can be when not guided by the dictates of common sense. Do not be angry with your wheat field because it grows chaff as well as grain.

ORIGINAL MATTER.

IN our salutatory, on page 15 of the first volume of the *JOURNAL*, we said, "It will give us great pleasure to lay the good thoughts of our brethren before our readers. With such help we expect to have the most thoroughly original journal known to the profession. But, if you disappoint us, brethren, of course we shall fail."

Well, thus far our brethren have not disappointed us; and we thank them. In blessing us they have blessed the profession, and themselves too, on the principle that "it is more blessed to give than to receive." But we hope, brethren, you will not grow weary in well doing; for though we expect to compile more in the future than we have done in the past, we want your contributions as much as ever, and as many as ever. We can make room for our compilation by restricting the space heretofore occupied by our own specials. Our readers will not grow weary of you, though they may of us.

It is a long time since the profession has seen a periodical so thoroughly original as the *JOURNAL* has been; but rivalry, or rather, we hope, a genuine revival, has waked up several of our exchanges and their friends, so that many more good articles

appear in their pages than did a few years back, and many of these we wish to lay before our readers; but again let us say, brethren, we do not want you to slack up, but the reverse, in furnishing contributions from your able pens. When so many of you can write so easily and so well, it is hardly fair that our readers should be put off with so much of our own twaddle.

We wish to keep our first department, "Contributions," up to its regular standard, even though it has been often suggested to us that this can not be done. The criticisms, in this respect, have been rather amusing. One almost sneered at the remark quoted above from our salutatory. He intimated that it was a rather presumptuous promise for a journal with but one editor, and he not the strongest man in the world. Others kindly expressed their regrets that the JOURNAL had started with such a large proportion of original matter, for of course it would be impossible to keep up such a course. And so we have labored as we were able, and you have helped us, as we hope you will continue to do, and the publishers have been energetic and kind, and the JOURNAL has prospered accordingly.

The circulation is now such that anything written for it is widely circulated. Through but one other source, perhaps, can you be more extensively read; and the contributors of the JOURNAL are men of such standing that you find yourself in good company by enrolling yourself with them. We make this appeal for your contributions, in this way, partly because we can not, as can most of our editorial brethren, attend the meetings of the societies, and by personal application obtain essays read at the meetings. We depend on your direct efforts, and as you have not failed us in the past, we trust you will not in the time to come.

A SCIENTIFIC EDITOR.

TO DIFFER in opinion with the "scientific editor" of a professional journal is about as dangerous as it is to snub the "fighting editor" of a political paper. But both risks should be taken rather than allow the banner of truth (science) to be trailed in the dust.

In the June number of the *New England Journal of Dentistry* is a well written article by the scientific editor that possibly

needs a little attention. On page 167 we are told that "If common amalgams, chiefly containing tin, silver, etc., are enacted upon in the mouth, generally insoluble compounds are obtained." "Tin forms tin oxide, tin sulphide, tin hydrate, all of which are insoluble."

This is calculated to quiet the consciences of the wavering and the doubts of the fearful, more than if tin and mercuric chlorides had been mentioned, rather than concealed under an "etc." But this is not very important.

On page 170 he sneers at the idea that concentrated hydrochloric acid produces white decay. "Is it possible," says he, "that in our century such crude—horribly crude—ideas can only be thought of?" Of course anything may be thought of; but we never heard the idea advanced before. Has it been imported from the wilds of Germany! But he goes on to say, "A decaying tooth is to us, and to every thinking chemist, still an 'I do not know.' We do not know what dissolves the lime, or why it dissolves only on this spot and not at others."

Caries is much besides dissolving lime salts. The causes of dental decays (for there are four varieties) may be each an "I do not know" to this scientific editor, and to many thinking chemists, whose thoughts have been in other directions; but it does not follow that all *thinking dentists* are in the same category. There are dentists who have probably devoted more months than this scientific editor has minutes to investigating the causes of the different kinds of dental caries; and some of them very well know the cause of each variety. And scores of thinking dentists, who have carefully examined and studied the structure and texture of dentine, know very well why some spots are attacked by the exciting causes of caries, while others escape. The difference in texture and structure explains this as surely as that cohesion is a modifying circumstance of chemical affinity.

We know of many physicians and other scientific men who have given decay of the teeth so little attention that they fail to recognize its origin in chemical action. (We are not talking of predisposing causes.) We do not know what is the opinion of the scientific editor referred to, but we recognize in him a man of science, and if he at all recognizes the acid theory of dental decay, with the light of present attainments, it will not take him long to arrive at correct conclusions as to the specific acids which are

the immediate, exciting causes of the different varieties of dental caries. His labors in this direction would be nothing in comparison with ours on the same subject; for when we began the investigations which have revealed these exciting causes, there had never been a lecture delivered on the application of chemistry to the wants of dental science. True, the renowned Doctor Slack and one or two others had lectured on chemistry to dental students, but they gave the same lectures they had previously given to medical and classical classes.

Only a few acids are ordinarily found in the fluids of the mouth. Let our friend, the "scientific editor," apply the logic of exclusion, or reduction to unity, to these, and he will soon find which are the guilty acids, whose guilt he can readily demonstrate by analysis. Take, for example, that variety of dental caries known as chemical abrasion. Several acids found in the buccal fluids do not corrode the teeth. These are ruled out at once. Then, in abrasion, no decomposed tooth substance remains in contact with the diseased surface. The reagent is able to dissolve tooth material. The dentine not yet acted on is normal on the very outer surface of the abrasion. The agent must be able to dissolve earthy and organic matter with equal facility. This rules out sulphuric, nitric, hydrochloric, malic, citric and many other acids. Pushing the research still further, it is found that but two acids ever known to be found in the buccal fluids, are capable of dissolving all the tooth materials with equal facility, so that, as far as the action goes, all of the tooth is dissolved, and these two are lactic and acetic acids. If abrasion is found on the teeth of young persons, it is generally due to the action of acetic acid, and if found with elderly patients, especially if they are rheumatic, or if they chew tobacco, the action is commonly caused by lactic acid. And when the abrasion is recent, it is not hard to find acetates or lactates, or both, in the mouth.

The same general principles may be applied to the consideration of each of the other three varieties of dental caries, but this item is already much too long.

We very cordially welcome the "scientific editor" into the ranks of dental journalism, where age and experience, but not talent, entitle us to rank as a veteran; and we fully recognize and rejoice in his scientific attainments, from which we expect to derive much pleasure and profit; but we do not yet see evidence

that very much of his scientific study has been in the direction of dental science, and, therefore, he would perhaps be more useful if he would lead only in the routes that he has explored.

Just here some one says, "Ne sutor ultra crepidam," but we'll not say it, for we don't like Latin, and are glad it is dead, and we do like good manners and the scientific editor, and are glad he is alive.

Compilations.

"Gather up the Fragments."

SOME OF THE PROBLEMS OF INEBRIETY.

BY T. D. CROTHERS, M. D., HARTFORD, CONN.

THE presence of one hundred thousand inebriates in this country is not a matter of chance, or accident, or the sudden outburst of a vicious element in human nature, but simply the result of certain physiological and psychological forces, moving in fixed orbits to a definite end. The problem of inebriety is physiological and not moral, and notwithstanding all the efforts of moralists and reformers, and all the advance of science, education, and civilization, inebriety is not only the most widely diffused and fatal of all diseases, but is rapidly increasing. There is no malady more intimately connected with the physical and mental conditions of the race, and yet the study of the subject is almost entirely in the hands of clergymen and reformers, who seek to perpetuate the old superstition of the vice of inebriety, its cure and study, by moral or legal means—merely a repetition of the same barbarous spirit which sought to drive the devils out of lunatics, etc., the history of which is the saddest chapter in human progress. The natural history of the phenomena of inebriety furnishes the strongest proof of its physical nature. Beginning from some general or special cause, the case always follows a progressive line, obeying a certain order of events, down through various stages to a fatal termination, always marked by positive symptoms of nerve and brain deterioration, morbid impulses, hallucinations, and general physical conditions, which in many cases

appear to precede, and always follow sooner or later in this disorder. These are only hints that suggest the wide unknown yet to be studied. The problem presented to every physician is: What is the nature and character of inebriety, and how can it be reached practically? If inebriety is ever a vice, or sin, it is a question for church and state alone, and not for science or medical study. There is no half-way ground: inebriety is either a vice or a disease: it cannot be both. The alterations of temper, disposition, or habits noted among the earliest symptoms of insanity represent more clearly a stage of vice in this disease than anything ever seen in inebriety; yet no one thinks of calling insanity a vice at one time, and a disease after. If inebriety is a vice to be reached by moral means, then every advance of society and civilization will lessen or diminish its presence, and all the vast machinery of societies, church and state, for its prevention and cure, will be eminently successful. The facts show that inebriety is increasing, following all ranks and conditions of society, keeping pace with every advance of the world; also that all personal efforts addressed to the moral side of the inebriate alone have failed, and in most cases have been followed by chronic incurable conditions. If inebriety is a physical disease, then we must look for the causes of its increase in physical conditions, surroundings, and civilization, and expect only to reach it by positive material remedies, which shall control these and other conditions manifest in every case. As a physical disease, practically unknown, and never studied from a physiological point of view, it would be natural to expect the most superstitious views and confused theories regarding its nature and treatment from those who approach it only from the moral side. A glance at the temperance literature of the day amply confirms this.

In the second century of the Christian era, Vulpian pronounced inebriety a physical disease, and from that time down the idea has been urged in almost every age. In this country it has taken root and grown slowly and steadily, passing through the stage of indifference into that of active denial and opposition, and on to that of recognition and endorsement. The problems connected with the physical disease of inebriety cannot be solved by any hasty generalization, or understood except from the most careful study and observations of all the mental and physical conditions which enter into the causation and appear in

the various complex symptoms. The exclusive study of insanity for over a century by able and learned men has only laid the foundation for more exact knowledge, and while solving many problems before unknown, has left as many more still in obscurity. Inebriety, as a disease, is more complex than insanity, and has never been accurately studied, and yet a learned specialist doubts the disease theory, because one or two inebriate asylums have failed, and he cannot find all the problems of inebriety solved in the scanty literature of a few pioneers in this field. Another specialist admits that disease may be present, but wants to draw lines between it and vice, defining the responsibility, and because this cannot be done, denounces all who study the subject as enthusiasts. The mass of the profession fall in with such views and the opinions of moralists and judges who dogmatically pronounce on the nature and character of inebriety, of which they know practically nothing. These facts simply show that the profession is at least half a century behind the public in the study of inebriety. The latter realize the threatening danger from this malady, and seek, by the best means in their judgment, to understand its nature and cure. Millions of dollars are spent, and millions of men and women are agitating the question, "What shall we do with the inebriate?" On the other hand the medical profession, to whom this subject rightly belongs, and who should study and teach the public what inebriety is, and how to treat it, are coldly indifferent, either endorsing the moral efforts of the public in this direction, or looking down upon them with scorn. The time is rapidly approaching when the necessities of the subject will demand scientific study. The anomaly of attempting to reach this vast army of inebriates by spiritual and moral means will mark this age as yet shadowed by the superstitions of the past. Inebriety and its problems may be studied by every physician. I have indicated that the natural history of every case follows a certain progressive line which may be understood.

I now propose to point out some general facts, about which the many problems of inebriety center. I am convinced that every case of inebriety has an early preliminary stage, in many instances before ever any form of spirits are used, and in others dating from the first toxic effect of alcohol. These periods are often obscure and variable in duration. They are easily recognized in children of inebriates, epileptics, or insane, and in those

who have no special hereditary. They live on the border-land of inebriety, likely any moment, from the slightest exciting cause, to develop this malady; or go on to certain periods, then become inebriates when not exposed to any prominent cause. For instance, in the latter case, any nervous strain or shock to the system past the middle of life, or the natural decline of the organism, will develop a craving for alcohols or narcotics in circumstances and conditions removed from all special temptation. As an example, a clergyman who inherited an inebriate diathesis, began to suffer from prostration and colic after his Sunday work, when past fifty; for this nothing but alcohol would bring relief. At first tincture of ginger was sufficient, then stronger alcohols, and finally he became an inebriate. This was a case of inebriety from a long premonitory stage, breaking out when his health declined. Common examples of the former class, who, subject to some powerful shock, such as grief, joy, injury, or any violent strain, become inebriates at once, will be recognized every day. Alcohol seems to explode a condition of nervous exhaustion or perversion of energy which has been gathering through the past. They were inebriates in all things except the use of alcohol long before. The other class give no special symptoms until after suffering from the toxic action of alcohol or being profoundly intoxicated. From this point alcohol may not be used again for years, yet positive symptoms of the early stage of inebriety will be unmistakable. The impress of the toxic action of alcohol is never effaced, and very often goes on in regular progressive stages from this point to chronic inebriety. In others it is variable and obscure. Complete intoxication for the first time in early life may be followed by a long life of total abstinence, ending in inebriety in old age. Any one who has suffered from intoxication or complete alcoholic poisoning many times will always exhibit some of these symptoms when excited. If he does not drink for years these symptoms remain, although less prominent. This starting point is like a germ from which all subsequent disease can be dated. Inebriety is undoubtedly epidemic, and moves in cycles which can be clearly outlined, following in obedience to some great psychological law at present unknown. The social history of every community that can be traced for a century or more will show the presence of inebriety, at certain times appearing with great intensity, then dying away,

and recurring again after an uncertain period. These great waves of inebriety are followed by counter-waves of temperance agitations. The Washingtonian movement in 1840, that spread over all the country, was the reaction from one of these inebriate cycles. From the records of courts and statistics in prisons, also from the history of legislative enactments controlling inebriates and the liquor traffic, which at times have attracted great attention, then passed into forgetfulness, distinct traces of these epidemics may be seen. The records of these waves are also noted in the moral progress of the country, in the history of church movements, and all philanthropic efforts for the welfare of the race. Inebriety is also clearly endemic, and follows some local causes which are more or less apparent; every sharply contested election, political revolution, or social change, is marked by waves of inebriety. The Black Friday in New York was notorious for the inebriety which followed directly from it. In a certain New England town a large number of inebriates appeared after a freshet which washed away the mills and suspended work for months. Local disasters which produce profound impressions on the community are followed by the same result. Revival efforts and protracted periods of emotional excitement often react in this way. Almost any cause which produces violent agitation or commotion, breaking up the normal healthy living and methods of thought, often ends in inebriety. There are certain districts in this country where inebriety seems indigenous; no matter what the people may be, or how much is done to counteract it, inebriety is always present. Sudden climate changes and particular occupations are known to encourage its growth. In a certain small town in Pennsylvania, after every Presidential election, inebriety increases double or treble to what it was before, and after a few months declines again to a normal condition. The police records in cities, and the tides of tramps and paupers that come up unexpectedly, point clearly to its endemic character. These are only general hints of the great forces which gather and break like storm-waves on the beach, or the fierce tornadoes of the upper air, all governed by laws and following certain causes which are as exact as that which governs the planets.

The inebriate, from the time of the first toxic condition, is always filled with the delusion that he can recover at will, and that his friends exaggerate both the nature and gravity of his

disorder. This follows down to the last moment of life, and under all conditions. The teachings of a bitter experience never efface it. In a personal study of many cases, I have never seen one who did not feel when free from alcohol that he could stop forever, and under no circumstances would use it again. This delusion assumes many curious phases, and is a source of much mystery to the friends of the patient, who after a time doubt all causes, except the power of evil habits. Sometimes this delusion is a prominent premonitory symptom, and is always suspicious of inebriety, especially when the patient exposed to temptations asserts his immunity from all dangers. This overweening confidence in his strength to recover any time is a pathognomonic symptom. One of the most obscure of all phenomena seen in inebriety is the loss of consciousness of right and wrong, the failure of the last acquired faculty in the progress of human evolution, the moral sense. The intellect may remain clear, and apparently be undisturbed, and yet the previously honest, truthful and moral man as an inebriate is often deceitful, lying, and obscene in his relations to the world. Deceit and lying seem to be the most common moral perversion, and appear in every case, no matter what the previous character may have been. Unlike that seen in criminals, it is aimless, foolish, and often without purpose. A kind of progressive paralysis of the moral faculties, manifested in a want of veracity about themselves at first, but in the chronic stages reaching out to indiscriminate lying and slandering of anything they come in contact with. In all matters relating to his disorder, the inebriate seeks to hide and cover up by prevarication; at first these methods are shrewd and skillful, but when the disorder increases, they are more apparent, the intrigue is coarser and more conspicuous. Irreverence is also a common symptom, equally mysterious to many. An impulsive, aimless skepticism and doubt about all settled questions of the day, and disrespect for superiors, is often present. On business and social matters the inebriate will reason with clearness and good sense, but on religious or scientific topics he entertains the most delusive theories. All recognition of conventional or social laws is ignored, and a reckless disregard of the rights and positions of others is very noticeable in certain stages of the disorder. Respect and obedience, which are the first principles taught in the army, are the first to be disregarded by the inebriate. In the thirty cases of

inebriety which came under official notice in the army last year, disobedience to orders, and disrespect for superiors are mentioned with every charge. In most cases this symptom comes on early, and grows to startling proportions. Why this faculty should be among the first to suffer is yet to be solved. But strangest of all, the patient never realizes that he has changed his views, or has less of these essential qualities than before. Through all the history of this disease, extending over years, there is a delusive changeable appearance of health that seems to be paradoxical with disease. The patient will, after a paroxysm of drink, stop and regain a high degree of apparent health, both physical and mental, then in an hour become a trembling, delirious inebriate. Every symptom of dissolution will be impending, and the mind passing into the final eclipse, when suddenly the patient will arouse himself and resolve not to use alcohol again, recovering as rapidly almost as he went down. Men who have used alcohol for years will suddenly recover and be apparently healthy ever after. The most exemplary temperance man will fall into inebriety without any apparent temptation, and die from the lowest forms of the disease. One man will sign the pledge, or come under the influence of religious emotion, and be changed; another will do the same and have the same influence, but keep on in secret for a time, then break out into worse conditions. I have seen men who could, under the most adverse conditions, keep the pledge, if it was for a stated time, but on the expiration of that time relapse in the most abject manner. A Boston physician, who had been given up as an incurable inebriate, signed the pledge for seven years, six months, ten days and five hours, and lived a strict temperance life up to that moment, when he drank hard, having made preparations for weeks before. He died a few weeks after from this cause. How the power of the will could so far paralyze the diseased organism, and hold it, up to the very day and hour, is incomprehensible. Some inebriates retain their usual mental health in certain directions, and for a long time give no general evidence of change. For instance, a business man may carry on some special work without anything noticeable in health, and yet at home, or away from business, be a chronic inebriate. In many cases attempts are made to cover up and conceal the malady, which for a time are quite successful.

These symptoms are simply unexplainable because they are

unknown. The periodicity of inebriates is also a field of wonderful interest. In some cases the intervals between the recurrence of the desire for alcohol can be calculated within an hour. So certain is the return of this diseased craving that no will or desire can check or change it. No circumstances of society, food, or medicine, will avail. When the time comes, the most precipitate revulsion of character takes place. These free intervals are full of strong symptoms, and vary in duration. In some instances they are marked by great efforts to build up what was lost during the paroxysm; in others, chimerical struggles for wealth and fame, or extravagant labors for family and relatives, or enthusiastic temperance work. Many of the most earnest Christian temperance lecturers of this country are periodical inebriates, who spend the free intervals of their disease in efforts for others. One of these men has been able for a long time, by large doses of chloral and morphine, to conceal his real condition; many others, like him, are making a hopeless struggle to cover up and control a disease which will surely conquer in the end. Heredity plays a very active part in the cause of inebriety. Passing down directly from parent to child, or skipping one generation only to appear in the next with more intensity; slumbering, in obedience to some unknown laws, in conditions that seem adverse, then bursting out like the fires of a pent-up volcano, thus appearing and reappearing in a manner equally mysterious. Indirectly, it comes from the heritage of other diseases, and alternates in the same obscurity, evidently dependent on special chains of causes and conditions. Most cases of inebriety are either traced directly to the next generation, or to some collateral form of disease, any one of which may follow or precede the other. Inebriety is positively transmitted to the next generation in some form or other. This diathesis, or special predisposition, may be seen through two or more generations, but will always bear the marks of its original character; sometimes going on to extinction, or bursting out again. The laws and facts which govern its march from one form of disease to another are still unknown. The many strange conditions known as cerebral trance, which are present in all cases of inebriety, have a medico-legal interest of great importance. The defects of memory, preceding this state, appearing in sudden blanks, or failures to register passing events, which, like the clouds over the sun, make a partial eclipse for a time, leaving

the other faculties intact, also the automatic action of the mind at these times, and the loss of consciousness of the relation of things, are psychical phases that are yet to be studied. These are only a few of the many problems which appear in a careful study of the history and nature of inebriety. Here, as in other diseases, there is a general correspondence which is significant of the presence of natural laws, which can be understood only by a new and wider study of the whole subject. All theories of causation and treatment not based on accurate knowledge will fail. Two general facts may be considered demonstrated beyond all doubt—that inebriety is a physical disease, and curable by the proper means, in special hospitals.

Stretching out from this are vast ranges of fields, covering all the complex conditions of causation, development, and decline, which we cannot ignore by the vague term—vice. A scientific advance is demanded, and inebriety must be a medical study before we can understand and apply the means for its prevention.
—*Medical Record.*

Correspondence.

"I charge you that this epistle be read."

Editor of the Ohio State Journal of Dental Science :—

LIKE a great many other people I have got into trouble, and not knowing any other way out of it I apply to you for help. Now don't be frightened till you have read this all through, for I assure you I only want your advice. What is the matter? Well sir, it is "Constitutional Treatment." Away back when I was a student, I used to get down my text books once in awhile to read, and I was always sure to run foul of "Constitutional Treatment." For example, they would tell me all about green tartar and how to remove it, and "shine the teeth all up nicely," and then say, In order to effect a perfect and final remedy for green stain "Constitutional Treatment" must be employed. Well, I used to wonder what that was, and one day I asked my preceptor, and he told me he didn't know. He had never had any of the stuff in the office, in fact had never heard of it before. So I let the matter drop for the time, but it was always sure to

turn up if I read anything on dentistry. But to be short, the other day I read an article in one of my dental journals about exposed nerves in teeth, and the writer said he had used "Constitutional Treatment," and had succeeded where others had failed. Now think's I to myself, that's just what I want, and I will have some if it costs ten dollars a bottle. So off I went to the dental depot and asked for a bottle of "Constitutional Treatment." The boy said WHAT? I repeated the request. He said he didn't know what that was; they hadn't any on hand; perhaps they could order it for me; he would ask the boss. The "boss" said he didn't know what it was, but thought I would be most likely to find it at some large drug store. So I went to the largest drug store in this part of the country. The clerk asked me who manufactured it, and when I told him I didn't know, he looked through all his catalogues and price-lists but with no success. As I was going out of the door, a bilious looking man who was writing at a desk, said something about some kind of a —— fool that the clerk was. Then I asked a brother dentist what it was; he didn't know, had often heard of it, and wanted some to try, if I got any.

Now, Mr. Editor, can you tell me what "Constitutional Treatment" is? and where to get it? I have looked everywhere and can't find it. Very Respectfully, Etc.,

H. D. WALDO.

West Troy, N. Y., May 6, 1882.

REMARKS.—The above is inserted as the best argument on hand in favor of the medical education of dentists. Too many in dental practice think you have given no information unless you have given an exact and definite recipe for each case that may arise. They wish and expect others to do their thinking. The only way they seem to learn is by blindly copying individual recipes. Their ideas of medical science are, that it teaches that gum squintum is good for sore eyes, and gum spankum good for squalls. Their practice is somewhat like that of the man who grew tired of farming, and concluded to be a doctor—or something—just to be called "doctor," was the height of his ambition. He thought that by recording his cases he would soon have an array of facts that would supply the place of science. When he was a boy his mother had dosed him with a decoction of the root of *podophyllum peltatum* and it purged him. He had

this fact to start on. His first patient was a big, burly butcher, full of blood, and suffering with headache. A dose of the tea gave prompt relief, and he made this entry: "Biled mayapple root cures butchers." Some time after, a pale little tailor, tortured with diarrhoea, took the tea, and it purged him to death. Our hero added to his entry, "but kills tailors."

Now if some one had told the tea doctor to give boiled mayapple root to butchers, and boiled brier root to tailors, he would have had the information he wanted on "Constitutional Treatment."

While we would advise teachers to be definite and clear, we would advise and urge students to study principles rather than recipes.

Books and Pamphlets.

"Of making many books there is no end."

INJURIOUS EFFECTS OF VULCANIZED RUBBER. Written for and published in the *Chicago Medical Journal and Examiner*, January, 1881. By L. P. Haskell, Chicago, Ill. Toledo: Ransom & Randolph, 1882.

Such is the title of a neat small pamphlet, published by Ransom & Randolph, for the author, which appears to be designed as much, or more for the general than for the professional reader. At any rate, it contains information highly important to the public, and should, therefore, be widely disseminated. Practitioners who wish to educate their patrons would do well to obtain a supply of the pamphlets and distribute them from their offices. They can be obtained from Ransom & Randolph at the rate of fifty cents a hundred.

Question and Answer.

"Wisdom is better than weapons of war."—SOLOMON.

Editor of the Ohio State Journal of Dental Science:—

IN mounting artificial teeth, would you consider it good policy to use aluminum for a plate? Will not the different acids of the mouth destroy it? eat holes into it? and cause it to scale off? And in testing aluminum, please give me a thorough lesson;

and would you not seal the vial (or whatever you were using) up air tight?

Yours in Ignorance,

W. M. M.

ANSWER, BY THE EDITOR.

To the first question, No! As to the second, some acids often found in the mouth corrode aluminum, and may, therefore, eat holes in a plate made of it. The editor of the *JOURNAL* was among the first to experiment with aluminum for dental plates. We tried it and abandoned it in 1858, but, at a later date, we, in connection with Drs. Berry, Drake and Williams, made prolonged and careful experiments in casting the metal into plates for artificial teeth, and again we abandoned it in disgust. The metal is very light and very strong, but is easily corroded by soluble chlorides, as well as by some, if not all of the alkalies. We have seen heavy plates of it eaten through in six months' use, and we have seen a few still comparatively good after much longer use.

As to a "thorough lesson" on testing aluminum, we must be excused. W. M. M. can find as much in any of the text books on chemistry as we can afford to give him, and if he wants more, it would be a good plan to take another course of lectures, and having previously gotten through the course of study, he can give special attention to chemical tests. That is the way we did when younger, and we still recommend the plan.

Societies.

"Wherewith one may edify another."

TO THE MEMORY OF DR. HAWXHURST.

At a meeting of the Chicago Dental Society, held May 2d, the following preamble and resolutions were unanimously adopted:

WHEREAS, It has pleased the Supreme Judge of the Universe to call from among us our esteemed friend and associate, the late Dr. D. C. Hawxhurst, of Battle Creek, Michigan, whose untimely decease was due to his untiring efforts in the pursuit of professional knowledge, and

WHEREAS, We have been deprived of the companionship and counsel of our brother, whose ability and learning, unsullied reputation and high sense of honor have endeared him to the memory of his associates, it is right and proper that we should show with what feelings of deep regret and sorrow we learned of his untimely death; therefore,

Resolved, That in the early decease of Dr. D. C. Hawxhurst our profession in general and the Michigan State Dental and Medical Associations in particular, have lost a useful, wise and good brother.

Resolved, That his generous, manly character and studious habits command our admiration, as his example does our earnest following.

Resolved, That to the family of the deceased we tender our heartfelt sympathy in this, their time of bereavement and mourning.

Resolved, That a copy of these resolutions be sent to the family of the deceased, to the Michigan State Dental and Medical Associations, and a copy transmitted for publication to each of the dental journals.

T. W. BROPHY,	} Com.
A. W. HARLAN,	
GEO. H. CUSHING,	

DENTAL SOCIETY OF THE STATE OF NEW YORK.

THE fourteenth annual meeting of the above Society was held at Albany, New York, May 10th and 11th, 1882. The following officers were elected for the ensuing year. President, L. S. Straw, Newberg; Vice-President, Frank French, Rochester; Secretary, J. Edw. Line, Rochester; Treasurer, A. H. Brockway, Brooklyn; Correspondent, W. H. Atkinson, New York.

J. EDW. LINE, Secretary.

AMERICAN DENTAL ASSOCIATION.

THE Twenty-Second Annual Session will be held in Cincinnati, August 1st to 4th, inclusive.

The meeting will be held in the hall of the Highland House, situate on Mt. Adams. This hall has been selected because it is

a large, commodious one, with side rooms for committees, etc. It is about five hundred feet above the city, and is always delightfully cool and pleasant, even in the warmest weather. It is easily accessible, being within a few minutes ride by street and inclined railway. Arrangements have been made for first-class hotel accommodations at \$2.50 per day. Dinner can be taken at the Highland House by all who wish it. The Gibson House, on Walnut street, between Fourth and Fifth streets, will be the headquarters for those attending the Association. Street cars pass the door every two or three minutes, going directly to the Highland House.

TRANSPORTATION.

A reduction of rates has been secured on the following railroads:

The Ohio and Mississippi R. R. will return those attending the meeting at rate of \$3.90 to St. Louis, \$1.50 to Louisville, and at one cent per mile to all intermediate points upon certificate of Secretary that full fare has been paid coming.

The Cincinnati & Louisville Short Line R. R. agree to the same rates between Louisville and Cincinnati.

The New York, Pennsylvania & Ohio R. R., from Salamanca and intermediate points to Cincinnati, will return those attending Association at same rates on certificate of Secretary.

The Cincinnati, Indianapolis, St. Louis & Chicago Ry. — "Kankakee Line" between Cincinnati and Chicago, "Big Four & Vandalia Line" between Cincinnati & St. Louis — will return those attending Association at rates as follows: \$3.00 to Chicago; \$3.90 to St. Louis, and one cent per mile to Indianapolis, Lafayette, Sheldon, Kankakee, and intermediate stations, on certificate that they paid full fare going.

The Cincinnati, Hamilton & Dayton R. R. will make same rates as other routes to Indianapolis, Richmond, Chicago, Toledo, etc.

The Cleveland, Columbus, Cincinnati & Indianapolis Ry., from Cleveland to Cincinnati, will also return all attending the meeting at one cent per mile.

The Cincinnati Southern R. R. will return those who have paid full fare coming for two cents per mile.

The Pittsburgh, Cincinnati & St. Louis Ry. — Pan Handle Route — will furnish round-trip tickets at two cents per mile, from Pittsburgh to Cincinnati, and all intermediate points, to all who will present orders for the same at their respective starting places. These orders for round-trip tickets may be obtained by addressing J. Taft, Cincinnati, Ohio.

The Baltimore & Ohio R. R. will sell excursion tickets between Parkersburg and Cincinnati, and all intermediate points, at two cents per mile, each way, to those attending Association.

The Chesapeake & Ohio R. R., extending to Washington, D. C., and Richmond, Va., reaching Cincinnati *via* Lexington, Ky., on the Kentucky Central R. R., will return those attending Association from these and all inter-

mediate points reached by this railway and its branches, at one cent per mile, upon certificate from Secretary of Association. These tickets will be good for stopping over at any point of resort or interest on the road. The White Sulphur Springs are on this route.

J. TAFT,
G. W. KEELY, } *Com. of Arrangements.*
C. R. BUTLER, }

ILLINOIS STATE DENTAL SOCIETY.

EIGHTEENTH ANNUAL MEETING.

BY NEBO.

THE annual meeting of this solid Society, for 1882, was held at Quincy, Ill., on the 9th, 10th, 11th and 12th of May. Much interest was felt in reference to it by all its members, as it was proposed to introduce a number of new features, some of them being described in the programme in the following words: "Clinics will be held through one morning only. They will be conducted by ten (10) operators, who will enable persons interested to see many operations in a short time.

"Drs. D. J. Pollock and W. H. Taggart will operate with the electro-magnetic mallet.

"Dr. Allport, who has had more than twenty-five years' experience in the use of non-cohesive gold, will be present, and demonstrate his method of operating.

"Drs. Morrison and Patrick will demonstrate new and improved plans for the construction and application of artificial crowns to the natural roots.

"Dr. Patrick will exhibit a new and simple device for correcting irregularities of the teeth, and will deliver a short lecture Wednesday evening upon 'The Mechanism of the Jaws of the Mammalia, illustrated.'

"Dr. Haskell, who was unavoidably absent last year, has consented to be present, and exhibit the outfit of a model dental laboratory."

This announcement could not fail to awaken special interest, and it is copied for the JOURNAL as a hint or guide to other societies. A clinic at a large society is usually a bore, but when ten special operators are at the same time displaying their

methods, there is a variety that can not fail to be both instructive and pleasing.

The Society was called to order at 10 A. M., at the Court-house, the President, Dr. A. W. Harlan, in the chair, with a large number of members present. Prayer was offered by Rev. F. A. Thayer, of the First Union Congregational Church.

Mayor Deaderick was introduced by Dr. E. S. Talbot, of Chicago, who in a brief speech welcomed the Society to Quincy, and expressed the hope that their meeting would be profitable and their stay pleasant.

The President, Dr. Harlan, appropriately responded, after which the roll was called, and Dr. E. D. Swain, of Chicago, was elected a member of the Board of Examiners in place of Dr. M. S. Dean, deceased. The Committee on Programme reported, but we shall give you only that part relating to subjects and essayists:

I. Mechanical Dentistry, Dr. A. W. Stevens, Chicago; II. Random Thoughts from the Laboratory, Dr. L. P. Haskell, Chicago; III. Operative Dentistry, Dr. K. B. Davis, Springfield; IV. Materials and Methods for Preserving the Teeth, Dr. J. N. Crouse, Chicago; V. Caries and Necrosis of the Maxillary Bones, Dr. T. W. Brophy, Chicago; VI. So-Called Riggs' Disease, Dr. G. V. Black, Jacksonville; VII. Indications for, and Best Methods of, Extracting Teeth, Dr. J. D. Murphy, Bushnell; VIII. Artificial Crowns, Dr. W. N. Morrison, St. Louis; IX. High Civilization Not the Cause of Tooth Decay, Dr. John J. R. Patrick, Belleville; X. Dental Education, Dr. E. D. Swain, Chicago; XI. Quinine: Its Use in Dentistry, Dr. C. R. Taylor, Streator; XII. Periodontitis: Cause and Treatment, Dr. J. Campbell, Bloomington.

All will agree that the thorough discussion of these topics would necessarily call out a great amount of solid thinking.

The President appointed Drs. Black, Cushing and Kitchen a committee to report resolutions in reference to the death of Dr. M. S. Dean; and after hearing the annual reports of a number of standing committees, the President, Dr. Harlan, delivered his annual address, which was able, interesting, and listened to with the most complimentary attention. The Secretary then read a volunteer paper from Dr. Barrett, of Buffalo, which was accompanied with casts to illustrate a peculiar case described in the

paper. This case was discussed till the hour of adjournment for dinner.

After some miscellaneous business in the afternoon, Dr. A. W. Stevens read an essay on "Mechanical Dentistry." The paper, among other points, took ground against combinations in the manufacture of dental supplies, and stated that we want no Vanderbilts in our profession.

After this, Dr. L. P. Haskell read a paper on "Random Thoughts from the Laboratory." He thanked the committee for giving mechanical dentistry the first place on the programme. He then detailed minutely the various appliances which a laboratory should contain. After this he described his methods of working in the laboratory, and incidentally gave the opinion that temporary plates should be inserted within twenty-four hours after extraction, illustrating his statement by a report of a case in which a man had six teeth extracted at five p. m., and at half past seven, the same evening, he ate supper with a set of new teeth.

The two papers were discussed together, the method of taking impressions receiving a larger share of attention. This was well, for if a man is a bungler, he is more likely to show it in taking impressions than in any other work. Dr. Hurtt suggested that artificial teeth should be set according to the disposition of the patient. He sets them for a close-fisted person quite different from his mode for liberal minded persons.

After this discussion the rules were suspended to hear a paper from Dr. W. N. Morrison, of St. Louis, on "Artificial Crowns." The doctor had prepared a paper on the subject but had left it at home, which was very unfortunate, as Dr. M. is very generally recognized as the originator of this style of work. However, he gave the substance of the paper orally, illustrating his remarks with models. He demonstrated his method of working, stating that he had begun to make this operation a success in 1862. His remarks occupied the time till six o'clock when the Society adjourned.

Before going further in the notice of the Society's doings, it may not be amiss to refer to a deed or *doing* of an individual member. The stale joke that dentists always look down in the mouth, regardless of cheerful surroundings, has led to the popu-

lar belief that dentists are all good specimens of sanctified solemnity, but some of them are full of fun, which, in one case, overflowed as follows:

Dr. Stevens, of Chicago, a few weeks since wrote to Louis Miller, of the Tremont, and inquired what kind of a saddle horse Dr. Robbins owned, stating that while here he would like to take a horse back ride. Mr. Miller drew a sketch of Dr. R.'s horse, and ye gods, what a horse! If any old crowbait could have seen it he would have gone off somewhere and died. Dr. Stevens received the picture, and liked it so well that he had photographs taken from it, labelled "Dr. Robbins' Thoroughbred Horse." Those pictures were sent far and wide. When Dr. Stevens was shown to his room in the Tremont Monday night, he found there a wooden horse and concluded that it had been provided for him to take a ride the next morning. He didn't ride the horse, but he sent it to Scott's and had it photographed. His friends will be furnished with copies of Miller's horse. The doctor thinks that so far he holds the best end of the joke.

We believe Dr. S. regards the *OHIO JOURNAL* as his very best friend, hence we think you will get a pair of horses for each of its offices. Toledo is too extensively laid out for the publishers to walk all over, and we don't think of your walking.

WEDNESDAY MORNING.

The Society met but was not promptly called to order. It was honored by the attendance of ladies, whose presence tended to banish, to some extent, the cigars of the day before.

On motion of Dr. Kitchen, Dr. Cushing, of the State Board of Examiners, was recommended to the Governor for reappointment. Seven new members were elected.

The resident dentists of Quincy treated the Society to a ride over the city, and were appropriately thanked.

Dr. K. B. Davis read a paper on "Operative Dentistry," which was followed by a paper from Dr. Crouse, of Chicago, on "Materials and Methods for Saving the Teeth."

These papers and their subjects were discussed by Drs. Allport, Brophy, Kulp, Sitherwood and others; Dr. Crouse proposing to stamp out phosphate and all other zinc preparations, and replying somewhat sharply to some of Dr. Allport's criticisms on his methods of separating teeth. Adjourned till afternoon.

AFTERNOON.

Called to order at 2:30, with increased attendance both of ladies and gentlemen. Among the ladies was Dr. Kate Moody, of Mendota. Mrs. Moody is a graduate of the University of Michigan, and an applicant for membership in the Society, to which she was unanimously elected.

Dr. Otoffy, of the committee appointed to present resolutions on the death of Dr. Hawxhurst, reported the following:

WHEREAS, Dr. D. C. Hawxhurst, A. B., M. D., D. D. S., of Battle Creek, Michigan, a corresponding member of this Society, died at Paris, France, February 19th, 1882, be it

Resolved, That in the death of Dr. Hawxhurst the Illinois State Dental Society, the Michigan State Dental and Medical Societies and the dental profession of the United States in general lose a bright ornament, an honored and valued member, that the family and friends of the deceased sustain an irreparable loss.

Resolved, That this Society humbly bow to the will of the Supreme Ruler, express their heartfelt sorrow and deep sympathy with the family and friends.

Resolved, That a copy of these resolutions be spread on the records and that a copy be given to the city press and the different dental journals for publication.

The resolutions were unanimously adopted.

On the recommendation of the Censors, four others besides Mrs. Moody, were elected to membership, one of the four being Dr. J. D. Moody, of Mendota.

The discussion of Dr. Crouse's paper was resumed, Dr. Black leading off in favor of "soft" gold for preserving teeth, giving experiments before the Society, which were carefully inspected by Dr. Allport, who proceeded to illustrate his own methods, showing the benefits gained by treating gold foil with ammonia.

Dr. Gardner then took the floor and asked questions out of (not in) the Shorter Catechism. The doctor is a humorist, and was trying to show that very often dentists are not so restrictive in their practice as they profess to be.

Dr. Reed elaborated the use of English amalgams, in preserving the teeth, and was followed in the same vein by Dr. Crouse.

Dr. Brophy condemned the use of chloride of zinc in capping exposed pulps. He pronounced the practice as pernicious,

and because it caused great and unnecessary pain. His remarks were highly applauded.

After several short speeches, Dr. Stevens, of Chicago, spoke on exposed pulps. He had heard much about successes, but nothing about failures. He thought he had never treated a pulp so much exposed as to bleed, that did not die. He had treated by various methods—using chloride of zinc and other reagents, but the pulps died, all the same. He strongly opposed the vigorous wedging of the teeth, as advocated by Dr. Crouse. He regarded such treatment as barbarous in the extreme, and was heartily applauded for the remark, as your reporter thinks he should have been. Dr. Noyes referred to an exposed pulp treated one year ago, which was still alive. Dr. Stevens asked him to watch it four years more, and if alive then he would feel encouraged.

The subject was passed, on motion of Dr. Gilmer, and Dr. T. W. Brophy read a paper on "Caries and Necrosis of the Maxillary Bones." The only good way to get an idea of this paper is to read it after it is in print. The lady visitors discussed the personalities of the members instead of listening to the paper, seeming to conclude that Dr. Brophy was more so than most of the others, and that Dr. Stevens was after him, "nip and tuck, with the wolf a little ahead."

THIRD DAY.

The morning session, as agreed to in the programme, was devoted to clinics. The operators were: Dr. Davis, of Galesburg, filling; Dr. Taggart, of Freeport, filling; Dr. C. P. Dorn, filling; Dr. Allport, filling with non-cohesive foil; Dr. T. J. Pollock, filling with electro-magnetic mallet; Dr. John J. R. Patrick, of Belleville, artificial gold crown; Dr. A. E. Matteson, of Chicago, artificial gold crown; and Dr. L. P. Haskell, of Chicago, exhibited the outfit of a model dental laboratory, which is said to be a new feature in Society proceedings.

At 2:30 p. m. the President called to order, and the committee on the death of Dr. Dean reported, and after a number of eloquent and eulogistic speeches, the report was adopted. On motion of Dr. Kitchen, of Rockford, it was decided to publish with the Transactions, a steel plate likeness of Dr. Dean. [THE JOURNAL asks for one, for its pages.—ED. JOURNAL.]

Dr. Stevens stated that in his paper read on Tuesday, he had made some thrusts at the manufacturers' combination. Some representatives of these dealers who are present have claimed that injustice had been done by the paper. He would move that they have the privilege of the floor, if they wish, to explain.

Some opposition was manifested. Dr. Cushing thought it was none of the Society's business what the manufacturers did at their Pittsburgh meeting.

Dr. Taylor thought the Society was interested, as their finances were affected by this action.

Dr. Allport said he understood that by the combination formed at Pittsburgh no competition is allowed; and that under it the White Company would monopolize the trade in this and adjacent States.

The motion of Dr. Stevens was carried, and Mr. Ransom, of Ransom & Randolph, Toledo, Ohio, publishers of the *OHIO STATE JOURNAL OF DENTAL SCIENCE*, took the floor, and said that the meeting at Pittsburgh was to secure fair and equitable dealing with dentists, and to prevent cutting in prices. By the agreement, the White Company withdraws its traveling salesmen from Indiana and Michigan, while his firm withdraws from Illinois. In answer to a question he said it had been the rule, for years, for dealers not to sell below the manufacturers' prices. Should he sell below them, the manufacturers would not sell him their goods.

Mr. Bingham, of the White Dental Depot, Chicago, said the combination is really beneficial to the dentists. His house had Illinois, while Ransom & Randolph have Indiana and Michigan, and the average dentist pays less for his goods than before. The object of the combination was to stop guerilla warfare among the dealers, and thereby the better serve the dentists. He was satisfied the average prices of dentists' supplies will not be higher than before the Pittsburgh meeting.

Dr. Haskell believed that if the manufacturers would advance their prices fifty per cent., both the Society and the public would find it beneficial, but he gave no reasons for his belief.

The censors proposed O. Wilson, D. D. S., for membership, who was duly elected.

A discussion followed on the paper read on Wednesday by

Dr. Brophy, on "Caries and Necrosis of the Maxillary Bones," and on the one read by Dr. Black on "So-called Riggs' Disease." (What is the matter with Riggs? or is there such a man? or is he only "so-called?"—REP.)

Dr. Stevens objected to Dr. Brophy's idea of a dose of salts for every case of inflammation; but Dr. Brophy claimed that Dr. S. had misunderstood the paper,

Dr. Murphy, of Bushnell, read a paper on "Indications for and Best Methods of Extracting Teeth," and Dr. Swain read a paper on "Dental Education." He seemed, to the reporter, to handle the subject with great caution. In the dental colleges of the present time he thought the student's time was wasted by studies not useful in practice. He would have them educated for *dentists*, not for business men or theologians.

Dr. Allport took issue with Dr. S., and wanted the foundations of professional knowledge laid broad and deep. He said some favored the study of dentistry first, and medicine afterward; but this was building from the top downward. He regarded dentistry as a part of medical science, a specialty, in the same sense as surgery, and therefore it was necessary for every dentist to have a medical education.

Dr. Sitherwood, of Bloomington, said he was a physician before he was a dentist. Of course he believed dentists should have a medical education. (But few dispute this; but how to obtain it is the question not yet settled.—ED. JOURNAL.)

EVENING SESSION.

Dr. John J. R. Patrick read a paper on "High Civilization not the Cause of Tooth Decay."

The paper discussed the various stages and degrees of civilization from the landing on Arrarat to that on Plymouth Rock, and on down to the present meeting. The reporter can give no synopsis of the paper to do it justice. It must be read.

Adjourned till 9 A. M. to-morrow.

LAST DAY.

Dr. T. L. Gilmer was elected a member of the Board of Examiners, to succeed Dr. Black.

Dr. Patrick was granted leave to read his paper on "High Civilization not the Cause of Decay," before the Missouri State Medical Society, but not to have it published in the transactions of that Society.

Dr. J. Taft extended an invitation to the members to attend the next meeting of the American Dental Association, August 1, in Cincinnati.

The President and Secretary were empowered to issue certificates to the delegates to the American Dental Association.

Dr. Patrick entertained the Society with his methods and appliances in regulating teeth.

Decatur was selected as the place for the next annual meeting.

The election of officers resulted as follows: President, E. C. Stone, Galesburg; Vice-President, John J. R. Patrick, Belleville; Secretary, E. C. Noyes, Chicago; Treasurer, E. S. Talbott, Chicago; Librarian, H. H. Townsend, Pontiac; Executive Committee, C. A. Kitchen, Rockford, Chairman; A. S. Waltz, Decatur; T. H. McCoy, Pana. Dr. E. D. Swain was elected a member of the Board of Examiners.

The Publication Committee was granted discretionary power as to the publication of the transactions. The committee consists of Drs. Noyes and Swain.

Dr. S. S. Taylor read a paper on "Quinine—Its use in Dentistry," and Dr. J. Campbell another on "Periodontitis," or rather, Dr. C. being absent, Dr. Sitherwood read his paper.

Drs. Harlan and Talbott gave accounts of their attendance as delegates at the International Medical Congress. The minutes were read, and the Society adjourned to meet the second Tuesday in May, 1883.

[The reporter would state that he found it almost impracticable to give a synopsis of the discussions so as to be understood, without a report of the papers read. But these are reserved for the official transactions. The report here given, he hopes will awaken such interest in the transactions of this vigorous Society as to cause very many to read them, and he hopes, too, that many will be thus induced to attend its annual meetings hereafter. A wide-a-wake dentist can scarcely afford to miss these meetings. And we all regret that the state of your health was such as to keep you away.]—REPORTER.

NORTHERN OHIO DENTAL ASSOCIATION.

ANNUAL MEETING MAY 9TH, 1882.

[Report by Dr. A. J. Douds, Secretary.]

THE Association was convened at Cleveland, Ohio, May 9th, 1882, and continued in session two days.

The attendance was good, and an unusual interest was manifested in the discussions.

The usual routine of business was promptly disposed of, including the election of officers for ensuing year which resulted as follows:

President,	DR. GALE FRENCH,	Pittsburg, Pa.
Vice President,	DR. POOLE,	Cleveland, O.
Recording Secretary,	A. J. DOUDS,	Canton, O.
Corresponding Secretary,	DR. HARVEY,	Cleveland, O.
Treasurer,	DR. ROBINSON,	Cleveland, O.

BOARD OF EXAMINERS.

Drs. Lyder, Bell and Ambler.

EXECUTIVE COMMITTEE.

Dr. Waye, of Sandusky, and Dr. Butler, of Cleveland.

The first subject for discussion, "Filling Teeth with Gold," was taken up.

Dr. Butler read a paper on it as a prelude to the discussions, in which he strongly criticized the method of Dr. Blount, of Geneva, described in the journals, of lining the cavity with soft, and filling the center with cohesive gold, using at the same time, the smooth, rounded point, claiming that many beautiful theories were promulgated which were utterly impracticable when applied to general practice. He condemned those who set themselves up as teachers of new and "original" methods which are merely old and exploded theories, which, in the hands of the most skillful operators, had been abandoned as total failures. He described the tendency of the gold to draw away from the periphery, and the utter impossibility, except in a few of the most favorable

cases, to secure the desired result. That cavities could be lined with non-cohesive gold be admitted, but by the method described by Dr. Blount, the great majority would prove absolute failures.

DR. ROBINSON: I do not take issue with the paper, and believe it utterly impossible to make soft gold cohesive under pressure of a smooth point.

DR. WAYE: Dr. Blount, under my own observation, has succeeded in making fine fillings with smooth, ovoid points, and so manipulated as to prevent sliding, producing beautiful results.

DR. JENNINGS: What makes gold cohesive?

DR. WAYE: The belief exists that non-cohesive gold can be more perfectly adapted to an uneven surface than cohesive. Heating the gold so opens the pores, or drives the crystals apart, as to produce what is called cohesive gold, which is the softest. Believe Dr. Blount can do what he claims; and many eminent in the profession claim that it is correct practice.

DR. FRENCH: Dr. Blount not being here to defend his method, I must say that, having sat under his operations, he displays wonderful manipulative skill in the use of the ovoid points. Some cavities can be lined with so-called soft foil, and filled with cohesive; but there are cases occurring every day in which it is not practicable. Hence, why advocate a theory that can not be made practical? Men start beautiful theories, and record only the successes, and of the failures we rarely hear.

DR. JENNINGS: The name, soft gold, is a misnomer. Soft gold is the cohesive, spongy foil. The non-cohesive gold is as hard as it comes from the hammer of the heater. The use of the smooth point hardens the gold, so that in even places most easy of access, the instrument will slide, producing a burnished surface.

DR. BUTLER: It has been remarked that Dr. Blount, not being present, in courtesy the article referred to should not be criticised.

The promulgation of a theory is a challenge for criticism; and if fallacious, it is just what should be expected, whether present or not.

The fallacious points, as stated by himself with cuts illus-

trating, are that gold has no affinity for the walls. The tendency is for the gold to be drawn off.

To attempt to unite cohesive to a base of non-cohesive gold, and make a success, is quite questionable,—a difficult thing to do, even with serrated points; so that to attempt to fill in this manner, the tendency is to draw the gold away from the walls.

A cavity as described could possibly be filled by using three cylinders, two soft on either wall, and the cohesive in the center, which, being stiff, could be driven down so as to make a good operation.

DR. HORTON: The tendency is always to work too rapidly. The use of small particles and small points will give better results.

Some men in the profession can't fill a tooth with gold, and have the honesty to admit it; others won't. Dr. Flagg is one of them. I've seen hundreds of his operations which were failures, and hence the necessity for the "new departure." Unless there is a want of life and health in the tooth, and vitality in the patient, gold is the material.

On motion the consideration of the second subject was taken up, viz: "Dental Prosthesis."

Dr. Waye opened the discussion by reading a paper on the subject.

Dr. Thomas, of Detroit, being present, the usual courtesy was granted to him and other visiting dentists.

There being some discussion relative to what constituted Prosthetic dentistry, the Chair decided that it should include restoration of crowns.

DR. JENNINGS: It should include the restoration of a tooth—the producing the proper expression—in short, a perfect adaption of the case to the requirements of the patient. It requires just as much skill to make and properly adapt a plate as it does to fill a tooth. Low prices prevent the necessary time being devoted to the proper execution of the work. Not five men in the State have a right to feel proud of the work they do in this line. Manufacturers have not met the wants of the skilled prosthetic dentist. Block teeth can not be as well arranged to suit the cases as they come up.

[To be Continued.]

TO THE DENTAL PROFESSION.

A MEETING of dental dealers and manufacturers for consultation upon the interests of the trade in dental goods was held in Pittsburgh in February last. It was there decided to form a permanent organization, and this was consummated at a meeting held at Niagara Falls, June 21.

Through a misapprehension of the objects of this Association by some members of the dental profession, the fear has been expressed that the intention was to combine for the purpose of raising prices, and in other ways to work injury to them.

It is the purpose of this paper to set forth the objects of the Association, and to show that apprehensions of injury to the dentists by its operations are entirely unfounded.

Number 2 of the Articles of Association sets forth the purposes of the organization, as follows:

"The objects of this Association are to reform abuses; to secure unity of action; to promote a friendly intercourse between its members; to avoid and adjust, as far as possible, differences and misunderstandings between them, and generally to advance the interests of the trade in dental goods in the United States."

This article is an honest and full expression of the objects of the Association. In their business relations the dentists, the dealers and the manufacturers are a necessity, each to the others, and whatever really injures one class will eventually injure the others. Neither manufacturers nor dealers can legislate against the *true* interests of their customers without in the end injuring themselves.

The dealers in dental goods in this country have suffered for some years from wrong business methods. These have grown very largely out of a want of intimate acquaintance and intercourse, leading frequently to unnecessary and unwise competitions which largely increased expenses and losses by bad debts, and which, while benefitting a few customers, worked a positive injustice to many others.

Organization will tend to correct these evils, and, by periodical meetings, intercourse, and discussion, information will be diffused, misapprehensions will be corrected, and the interests of all concerned will be promoted.

The dentists themselves long since decided that organizations with frequent meetings for the interchange of ideas and information are of inestimable value. It is believed that they will not be disposed to condemn, *a priori*, a plan for others which they have found so beneficial for themselves, but that they will be willing to accord to the dealers the privileges of organization without fear that the Association will be used by its members against the interests of those who are in business their best friends.

The business of a dealer in dental goods must, of necessity, be of a limited character,—very different from that of a dealer in dry-goods, groceries, iron, or lumber; dealers in these articles have the entire population of the country for customers, while the number of *dentists* in the country is hardly more than twelve thousand.

One may be led to invest in luxuries for the table, in more fashionable garments, or more elegant furniture, without in any way reducing his *needs* for the future. Not so, however, with the business wants of the dentist; these are strictly limited to his practice, and if in any year he is led to buy more gold foil, rubber, teeth, instruments, etc., than his practice requires, his future purchases will be diminished in exact proportion. It is from forgetfulness of this fact, and from treating the wants of the dental profession as practically unlimited, that the wrong methods above referred to have mainly arisen, and they have wrought injury to both dealer and dentist.

I. The dealers have engaged very vigorously in a system of traveling far and wide which has added largely to their expenses without proportionately increasing their profits; in some sections of the country they have crossed one another's tracks continually, often to the great annoyance of dentists, who have too frequently been called from patients to wait upon canvassers. Some have been led to give away a portion of their legitimate profits in order to make sales, and with this has been the inevitable tendency to press the sale of inferior goods in order to keep up profits. Some have been persuaded to give unwarrantable credits, and thus to incur unnecessary losses from bad debts.

The tendency has been in the direction of increasing expenses, increasing losses, constantly decreasing net profits, inferior

quality of goods, and, in short, toward the degeneracy of the trade.

II. The dentists have been injured by this system in several ways:

1. It has wrought injustice to the many by the favors and concessions that have been given to the comparatively few. Cases were reported at Pittsburgh of three dentists in the same town, having the same kind of practice, yet each paying a different price for the same goods; of a dentist who, by shrewdly setting three dealers to bidding against each other, purchased his office chair, etc., at nearly twenty-five per cent. less than his neighboring competing dentists were paying. It was shown that the dentist who had the most time to canvass among the dealers, or who could succeed in causing two or more dealers to bid against each other, and the dentist who lived on the routes most frequented by travelers, were the ones who received favors in price and credit; while the confiding one who ordered of his dealer without bargaining, in the belief that he would be as well served as any, the busy dentist who had not time to shop, and those not so frequently visited by canvassers, were charged full rates, and therefore, as compared with the others, were treated unjustly.

These irregularities have, it is true, been limited, though of late the tendency has been to extend them; and it is undoubtedly true that far more than a majority of the dentists of the country have, by these practices, been placed at a disadvantage as compared with the minority.

The Dealers' Association proposes to correct this by adopting uniform rates for the same kind of goods, and treating all with equal fairness.

A schedule of discounts for large, strictly cash purchases has been adopted, and by giving all customers the benefit of it, the gross profits of the dealers will not be enhanced, and the dentists of the country, as a whole, will pay less for their supplies than under the old methods.

2. The competition on the road and the desire to do a larger business than is warranted by the nature of the trade have been to the dentist fruitful sources of debt, that in many instances has proved burdensome and embarrassing.

The temptation of long credit as an inducement to buy large

bills in advance of any reasonable wants has been freely offered. Many dentists have thus been burdened through promises from salesmen of a credit "as long as convenient"—promises which the principals have not known of or consented to, and the result has been misunderstanding and ill-feeling.

Believing that, as a rule, it is no kindness to the average professional man to induce him to incur debts beyond his needs for a moderate and reasonable time, the aim of the Association will be rather to offer inducements for cash transactions, than to endeavor to make sales by offers of unreasonable credit. It is believed that the relations between dentist and dealer will be strengthened, and that both will be benefited by this course.

3. The late methods of business have had the tendency to cause dentists on traveled routes to rely more upon travelers than upon their nearest local dealer. By encouraging him with his trade the dentist will enable his dealer to keep a better stock and to supply his wants as they arise, without the inconvenience of waiting for travelers.

One object of the Association is to enable the dealer to supply his own local trade at as low a rate as any others can, and, of course, more promptly.

4. A far more serious matter to the dentist than those above referred to is the inevitable tendency of an eager competition for cheapness toward depreciation in the quality of the goods offered. It has been truly said that "competition for cheapness and not for excellence of workmanship is the most frequent and certain cause of the rapid decay and entire destruction of arts and manufactures."

No inducement that can be offered in the way of lower prices can in the slightest degree compensate for such depreciation. The greatest injury that can be inflicted upon the dentist, in view of the operations which he has continually to perform, is to supply him with inferior materials, appliances and instruments. Most emphatically in his case "the best is the cheapest." There has been of late, as there must always be where a competition for cheapness exists, a tendency toward inferior goods.

The Association will, indirectly, and yet surely, operate to correct this, and to place competition on the nobler ground of contest for excellence in quality rather than for cheapness in price.

The Association is not a combination for the purpose of establishing a schedule of prices for dental goods. Differences in quality and in prices have always existed and will continue to exist. Any attempt to harmonize these differences would obviously be impracticable. The various manufacturers of teeth, instruments, etc., will, as heretofore, make their own prices on their own products, but as manufacturers of dental supplies are also retailers, it is understood that whatever prices are established, or whatever alterations in prices are made, the facts shall be announced to the dealers, so that they shall have the privilege of selling as low as the manufacturer, and, on their part, it is understood that the manufacturer shall not be undersold on his own goods.

So far as prices are concerned, this is all there is in the organization. It does not make prices; it does not seek to control the manufacturers, nor to establish uniformity as to quality or price — these points are left open to wholesome competition — but it does seek to bring the dental trade to the one-price system *on the same goods*; a fair and just system which, once established, will give assurance to each customer that he is paying the same price for the same goods that his neighbor pays; and that without loss of time or temper in canvassing among different dealers.

Such a system cannot fail to commend itself to all fair men.

In brief, the *American Dental Trade Association* hopes, by correct business principles and methods, by associated action, by social intercourse and business conferences, to be an attraction and a benefit to its members; and it desires, by careful attention to the wants of the profession, and a constant effort to aid in the progress of dentistry, by fair dealing with every buyer, by an honest purpose to serve faithfully those who look to its members for supplies, by the assurance that the buyer who sends his order confidently will surely receive as low rates as if he spent his time in bargaining, and that no competitor will receive special favors in prices, to commend itself to the confidence and esteem of the entire dental profession.

THE AMERICAN DENTAL TRADE ASSOCIATION.

J. LITTLEFIELD, *President*.

LEE S. SMITH, *Secretary*.

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“A word fitly spoken is like apples of gold”—SOLOMON.

*CIVIL MALPRACTICE CONSIDERED IN RELATION TO
THE PRACTICE OF DENTISTRY.

BY H. A. SMITH, D. D. S.

“A doctor who knows nothing of law, and a lawyer who knows nothing of medicine, are deficient in the essential requisites of their respective professions.”—DAVID PAUL BROWN.

It is a principle recognized in law, that no man has a right to engage for the performance of a work for which he has no qualifications to do as it should be done, and if injurious consequences must follow his failure, he is morally inhibited from the doing. In adopting dentistry as a calling, one assumes a definite function or office, the exercise of which touches interests of vital moment to those who commit themselves to his professional care; and since those who come to him for treatment must come in a spirit of trust, being unable to test his qualifications personally,

* In the preparation of this paper, the very excellent work, McClelland's Civil Malpractice, N. Y., 1877, has been mostly consulted, and in some instances the language of the author, as well as the decisions in cases cited therein, used *verbatim*.
H. A. S.

the exercise of his employment is regulated by fixed rules in order to "insure due diligence and skill and its appropriate reward."

The gradual and progressive growth and expansion of the science and art of dentistry, as indicated in the varied services now required of the dental practitioner, imposes increased obligations, moral and legal, proportionate to the advancement made, and the increasing frequency of suits for malpractice gives evidence that surgeons and dentists are being more and more held responsible by law for the results of their surgical practice. It is important, therefore, that we should, as practitioners of a branch of the healing art, understand in some degree, at least, the science of what is just and unjust (jurisprudence) as applied in *civil malpractice*.

Malpractice is said to be either ethical, criminal, or civil. It is the latter that concerns us most.

In civil malpractice, patients bring suit for damages which they have or think they have sustained through want of skill or negligence on the part of the attending physician, surgeon, or dentist.

Civil malpractice is either "active," that is, when a certain course of treatment is adopted and followed which is not sustained by the authorities, or "passive," as when in treatment things are omitted that should have been done to effect an approximately good result.

The following extract from Hilliard's Law of Torts covers very nearly all the law on our responsibility as dental practitioners. He says: "Under some circumstances a physician or surgeon will be held very strictly answerable for the consequences of his professional action or neglect. Thus, it is held, that where medicine is administered to a slave without the consent of his owner, the physician is responsible for all the evil consequences which result from his act. So an action lies against a surgeon for gross ignorance and want of skill, as well as for negligence and carelessness, though if the evidence be of negligence only, which was properly left to the jury and negatived by them, the Court will not grant a new trial because the jury were directed that want of skill alone would not sustain the action; but, in general, a physician or surgeon is responsible only for *ordinary or reasonable* care and skill, and the exercise of his best judgment in matters of

doubt, not for the want of the highest degree of skill. It is the duty of the patient to coöperate with his professional advisor, and conform to the necessary prescriptions; but if he will not, or under the pressure of pain he can not, he has no right to hold his surgeon responsible for his own neglect. The implied contract of a surgeon is not to *cure*, but to *possess* and *employ* in the treatment of a case such reasonable skill and diligence as are ordinarily exercised in his profession by thoroughly educated surgeons; and in judging of the degree of skill required, regard is had to the advanced state of the profession at the time. So the law requires of a *dentist* a reasonable degree of skill and care in his professional operations, and he will not be held answerable for injuries arising from his want of the highest attainments in his profession.

In the peculiar line of his duties, the dental practitioner frequently has intrusted to him the highest interests of his patient, and the patient has the right to demand that the person holding himself out to the world as qualified to practice dentistry shall exercise such skill and diligence as educated dentists ordinarily employ. As pithily said by Fitzherbert, "It is the duty of every artificer to exercise his art rightly and truly as he ought."

The law does not demand extraordinary skill, such as the few men of rare genius and endowments in the profession attain to; but rather a practical and ordinarily attainable standard of skill.

Opportunity and place, the advanced state of the profession at the time, and the opportunity of the dentist to avail himself of the improvements of the day, will assist in establishing a criterion by which to judge of the dentist's ability or skill.

The rightful possession of a diploma from a duly incorporated dental college, or a certificate of qualification from a board of examiners authorized by law, is *primâ facie* evidence that the possessor has the requisite degree of skill to practice dentistry, and error in judgment in a person skilled in a particular calling is not malpractice, unless a gross error. On the other hand, a man who falsely holds himself out to the world as possessed of a diploma or certificate, and therefore, a dentist within the meaning of the statute, will be held to far greater responsibility by the courts, for error in judgment; and if proven that he is both ignorant and unskilled, he will be liable for all the damages resulting from his surgical treatment.

"There is no law which prohibits any man from prescribing for a sick person, with his consent, if he honestly intends to cure him by his prescription." So any one may extract an aching tooth, or treat it otherwise, with the consent of the sufferer; and if injury result from such treatment, the injured party would have no cause of complaint. The Mohammedan law is, "If a person will knowingly employ a common mat-maker to weave or embroider a fine carpet, he may impute the bad workmanship to his own folly."

The dentist, in taking charge of a patient, not only obligates himself to exercise a reasonable degree of skill, but also, reasonable diligence and care in the performance of his professional duties. He is responsible for omitting to do, as well as the ill doing. The surgeon must not leave the control of hemorrhage from large blood vessels opened in his operations, to the patient or attendants who are unskilled. Neither may a dentist, if his attention is directed by the patient to a tendency to excessive bleeding, after extraction of teeth, perform the operation and dismiss the patient, whilst bleeding, without first making an intelligent effort to arrest it; and if secondary hemorrhage occurred, he would be required to treat the case with ordinary skill and diligence, if notified of the danger. Where such a diathesis existed, with his knowledge, the dentist would not be justified in removing any considerable number of teeth at a sitting, because of the increased danger of excessive bleeding from the wounded capillary surfaces, and corresponding difficulty in arresting it. Owing to the obscurity of the physical signs by which the hemorrhagic diathesis may be recognized, the dentist would not be held responsible for injury from excessive bleeding, because of a failure to discover the cachexy before operating. Neither would he be bound to exercise more than the ordinary skill in detecting the physical signs, which contra-indicate the use of anasthetics, before administering them.

In treating deformities of the mouth, dentists are sometimes charged with negligence. If in a case of regulating, the dentist should apply force experimentally, as he is sometimes required to do in the beginning of these cases, and failing to notify the patient to return within a reasonable time, the teeth intended to be operated upon were lost by such omission of duty, the dentist should be chargeable with gross negligence.

Whilst as dentists we have specific duties imposed upon us, which we may not safely disregard if we once enter upon their discharge, the patient, also, has certain duties incumbent upon him. He is bound to coöperate and obey the reasonable instructions of the dentist. As in the hypothetical regulating case cited, if the patient was instructed to return in the course of the same or next day, after applying the force, and failed to present himself for several days, when the loss of the teeth had resulted, it would be held that the patient had proximately contributed to the injury complained of, and he could not recover damages. As the correction of this class of deformities is mostly undertaken for young persons, the age of the patient, and his capacity to exercise discretion and judgment, would be carefully taken into account before passing upon the question of contributing negligence on the part of the individual injured. The dentist cannot, therefore, exercise too great care when treating cases of irregularity of the teeth for children, in giving full and explicit directions regarding their care and management, to the parents or guardians.

A dentist who gives his services is liable for gross negligence only. "The less payment made in return for diligence, the less the diligence that is expected; and if no payment at all is made, as little diligence as possible is usually expected, though it may be that some is." The dentist will, however, be held firmly by the courts to the slight degree of care and diligence for which he engages, when treating a patient, with his consent, out of pure favor. "The person receiving such gratuitous service is then bound to the highest degree of care."

A dentist may contract to perform a cure or warrant his operations, but his mere employment does not imply that such a contract exists. The implied contract is to treat the case with reasonable care and skill, and his right to recover a reasonable compensation for services does not depend upon the successful or unsuccessful result of the case, but upon the attention and skill bestowed in the treatment or operation.

Prosecutions for malpractice are frequently traceable to the popular misconception as to the possibilities of surgical skill, and in order to avoid such prosecutions dentists should carefully avoid making too confident promises as to the results of their surgical treatment. "They should be candid in regard to their deficien-

cies, claiming no more for their art than belongs to it," whilst at the same time they should not be forward to make gloomy prognostications.

SOME OBSERVATIONS ON THE NAIS.

BY JAMES H. LOGAN, M. A., ALLEGHENY, PA.

Read before the Iron City Microscopical Society of Pittsburgh, Pa., June 19, 1882.

THIS annelid, though common enough, is a most remarkable and enjoyable object for the microscopist. On account of its curious structure, it is especially interesting to the histologist and no less so to the biologist. Here we may observe to advantage and gain an insight into some of the processes of life hidden from the eye in larger animals.

The nais here described is a different one from the red worm of which Carpenter, in his work on the microscope, makes some mention. The worm occurs abundantly in the mud of rivers, and in the incrustations of mud and vegetable matter on rafts and logs in the water. By holding against the light a glass jar in which some of this stuff has been placed, one readily sees the worms crawling on the sides of the vessel, to which they generally cling, and feed upon the vegetation which grows there. Such is their transparency that most of their internal organs may be viewed and studied with great satisfaction. They are easily captured with a dipping tube. To show them to the best advantage certain precautions must be taken. A glass slip three inches by one inch, and a thin glass cover one inch in diameter, furnish the observer with ample facilities for their examination, even under a power in excess of 5,000 diameters. With a low power and dark ground illumination the nais presents a truly magnificent spectacle, displaying at one view rolling lymph corpuscles, pulsating vessels and the circulation of the blood.

When mounting, cut three little bits of note paper, no larger than the letter O in this text, and gum them to one side of the thin glass cover, near the edge and equally distant from each other. Place the worm in a small drop of water occupying the center of a glass slip. Now hold the thin glass cover lightly by the edges with the bits of paper downwards and gently place it on the drop. One will readily find out by a few trials the

thickness of paper best suited to the particular worms under observation. The drop of water when spread out under the cover should occupy a circular space one-fourth to one-half inch in diameter. The worm may in this manner be slightly flattened and have its motions impeded so as to be easily kept in the field during observation. Sometimes it is a decided advantage to put the worms in a vial of clear water until the contents of the intestine are entirely got rid of, and then mount as above.

The body of the naïs here considered is of a white or yellowish color and varies in length from one-eighth to one-half of an inch. It is divided into many segments, often numbering forty. Each segment is provided with two fine tapering bristles, while the greater number have in addition six horny rods which answer the purpose of feet. These are arranged in sets of threes slightly diverging from their point of attachment, and at the free extremities of each rod are two prongs. Each bristle penetrates the body for some distance and is moved by two muscles.

The head is triangular, with a rounded snout and is provided with two red eye-spots. The mouth bears some resemblance to that of a sturgeon. In feeding, a very elastic tubular member is protruded and then drawn in again, grasping a bit of vegetable matter. The digestive apparatus begins with a short gullet connected with a ventricose body, which narrows to a small tube and then expands into another ventricosity. After this the intestine is continued as a very regular spiral tube to the anus. The spiral convolutions are seen best when the body of the animal is not flattened. Within this tube nearly everything upon which the creature feeds may be easily discerned. Its food comprises diatoms, desmids and confervoids. By watching a desmid, for instance, the course of the food from mouth to its final exit is observed without trouble. Diatoms are often expelled as completely cleaned of their endochrome as if done by acids. A noteworthy fact is that globular or oblong masses of faecal matter, while moving onward in the act of final expulsion, may be seen to rotate several times in the axis of the intestine. How this rotation is produced is not clear. The peristaltic motion of the intestine is also beautifully apparent. The intestine, moreover, appears to be invested by a very loose and delicate membranous sheath which bulges out for a considerable distance with every pulsation, and it is only then that its presence becomes known.

Oil globules may also be seen forming an investment along the entire length of the digestive tract.

Along each side of the body numerous white granular bodies are observed. These are lymph corpuscles. Every movement of the naia causes a rolling of these to and fro in the lymph spaces between the skin and intestine and through the transverse channels communicating with those on each side. There are membranous septa between the segments of the body provided with openings. By crushing the worm under a thin glass cover the corpuscles are expelled and may then be observed singly under very high powers. They contain both a nucleus and nucleolus, and are filled with a great number of small, round particles in active movement. Sometimes the outer envelope bursts, scattering the granules, but leaving nucleus and nucleolus with their shape and contents intact. The bursting may be owing to the imbibition of water. Aggregations of oil globules, about the size of the lymph corpuscles, may be observed rolling about with them. Are these oil globules extracted from the contents of the intestine, transformed into lymph corpuscles, and the liberated granules of ruptured lymph corpuscles changed into blood discs? Such questions and others would arise during the examination, and if there is anything of this kind the animal under consideration affords a very favorable object for investigation.

Winding tubes, apparently devoid of contents, extend along the body of the animal. They expand and contract alternately, the sides coming together so closely during contraction as to cause the tubes to vanish. What their real object is does not readily appear; but they are probably a system of water pipes for the aeration of the tissues.

Running through the body may also be seen a system of double cords, with loops here and there. A high power examination shows these to be double tubes, and really a system of blood-vessels. At the bends of the loops the flow of blood is easily seen. These vessels are very loosely suspended, for with every motion of the body they sway from side to side. Occupying the head of the worm is a system of anastomosing channels, in which a rapid circulation of the blood is manifest. It is in the caudal region, however, that the circulation is most prominent. Here it may be seen flowing in a constant stream towards the head. Apparently the fluid streams in a space between the intestine and

an outer enveloping membrane, for it follows all the windings of the former. Owing to the depth of the intervening tissues, it is difficult to make out the flow further up than, to the extent of a few segments. This is perhaps a large annular vein receiving the blood from the system of double tubes, which would, in that case, be arteries. How the anastomosing channels of the head, double tubes and this annular receptacle for the blood are connected has not yet been traced out. There is also, in all probability, a heart or pulsating organ.

In the anterior portion of the body there is a kind of sac filled with granular contents, which are subject to a kind of churning or kneading process. One end contracts or shortens, forcing the contents to the opposite end, which, in its turn, repeats the process.

Another interesting peculiarity of this worm is its mode of reproduction by transverse fission. The commencement is marked by the appearance of eye-spots and a notch where the division takes place. The constriction grows deeper, and the two parts separate; but they may often be seen still united by the delicate membranous tube of a presumed water pipe, which may be traced from this point through the body of each animal.

When a worm is cut in two, the posterior extremity has been found covered with vibratile cilia in violent motion. It was not determined, however, whether these belonged to the internal coat of the intestine or to its enveloping sheath.

In conclusion, it may be remarked that without access to the splendid works on similar organisms of de Quatrefages, Claparède, Macintosh, Ehlers, and others, one is very apt to work most industriously in a circle. Yet, as the matters here treated of are the result of personal observation, they may be of use in directing attention to an object valuable as affording illustrations of some physiological phenomena.

FILLING TEETH WITH GOLD.

BY C. R. BUTLER, M. D.

[Read at the May meeting of the Northern Ohio Dental Association.]

WE will commence by saying that the prime object of filling teeth with gold, or any other material, is to *preserve* them in a useful condition.

The particular *form* of gold, or instruments for its impactment in a cavity that has been prepared, has very little to do with the success of the operation, if the proper skill be wanting in the person that attempts to use them.

Many very beautiful theories are set forth on paper, but like the Keeley motor, they are worthless in a practical sense.

And another good example is shown in an article by a former Ohio man, now practicing at Geneva, Switzerland, in which he describes his manner of introducing soft and cohesive gold in the same cavity, and says that, after forty years' practice, he has now reached the point where he can shout Eureka, without any possible chance of being mistaken. But we question whether the new mode may not prove to have, even in his hands, some very weak points.

He confesses to have groped the past forty years, and says :

"I propose to present to this Association a method entirely new and original in the manipulation of soft and cohesive foil."

From the above language we would infer that Dr. Blount is the first to combine non-cohesive and cohesive gold in filling teeth. His article on the subject having been published in several journals, I refer to it at this time as a basis of a few remarks.

We do not care to take any of the *glory* of the *new* method, if practiced as described by Dr. Blount. The use of non-cohesive and cohesive gold, in the same filling, is no new thing, however.

Having witnessed the making of sundry operations at the old Pennsylvania College of Dental Surgery, in 1857-8, and subsequently, with the two preparations of gold foil, under the supervision of Prof. Elisha Townsend and Dr. Jack, I am fully convinced that there are many advantages in the two kinds of foil, when properly employed.

But the *modus operandi* of its insertion, as described and as shown by the accompanying cuts, is a delusion and snare. We do not care to take the time, by quoting from the article, presuming that all have read for themselves.

It is well known that gold has no affinity for tooth-bone; and it can be brought in close contact with the walls of the cavity only by compulsory force.

Dr. Blount says, line the cavity entirely with non-cohesive gold, because it is more readily adapted to the walls and borders

of the cavity, and gives protection to frail margin of enamel, before commencing the use of cohesive gold.

Wherein does it give strength to the borders so long as it yields under pressure? which we must infer from his description, so that it may be the more thoroughly impacted to the wall of the cavity when the cohesive gold is driven on or into the soft. And this is to be done with smooth *oval*-pointed instruments, in order that the gold may have lateral expansion.

Now, just at this point lies the greatest snare in the whole mode as set forth; for it is well known by experienced operators that a *strong* union of non-cohesive and cohesive gold is a difficult point to obtain, even with serrated points that leave a roughened receiving surface upon the impacted mass of gold. And if any doubt this statement, let them make some careful tests, and they will find that the union between cohesive and non-cohesive gold, where one is packed upon the other, is quite different from that where cohesive gold is used entire, no matter what kind of surface-points were employed in the impactment of the mass. And in the class of cavities described, especially, we must have a strong body of gold well anchored, in order to stand the masticating force.

It is much easier to make an operation on paper than upon a tooth in the mouth; and so with this soft gold lining, when the cohesive gold is packed, the tendency is to drag it from the wall, by the natural affinity that gold has for itself, if it coheres at all. The elaboration probably will come in the discussion.

TOOLS VIA FERRUM.

BY DR. J. F. SIDDALL, OBERLIN, OHIO.

NOTHING used by the dentist is of more utility than iron. A moment's reflection will convince any one of the truthfulness of the statement. Think of steel burs, broaches, burnishers, chisels, clamps, drills, excavators, elevators, files, flasks, forceps, scalers, scrapers, scissors, separators, knives, mallets, pluggers, pliers, probes, to say nothing of engines, lathes, operating chairs, and many other appliances that are composed largely of iron or steel. Indeed, almost every instrument, appliance, tool, or machine used

by us is but little else than iron. I might say that just in proportion as we are iron-clad are we equipped for our work. It would be very interesting to take up this most wonderful element in its history, and in the development of its uses, at considerable length, if time would permit. But I propose to say only a few words about it.

Of all metals, iron is the most widely and extensively distributed, and, at the same time, it is the most useful of all. It was first used as wrought iron only, and in a very rude way; but as men began to feel the want of something with which to cut each other in pieces, they learned how to harden and temper it, so as to make swords and other edged tools.

We find, to-day, in common use, three distinct and well defined forms of iron. On the one hand we have wrought iron, soft, malleable, and ductile, stuck together like fragments of dirty beeswax softened in tepid water, by a process called welding, which is simply pressing together a multitude of particles of iron at a white heat, intermingled with cinder and slag into a common mass. The hammer, or rollers do the work, and give the desired form to the iron. Of course, from the way it is put together, wrought iron is, in structure, heterogeneous, or fibrous, or laminated.

Then, we have cast iron, hard, neither malleable nor ductile, having been melted and poured into a casting. Being free from slag and cinders, thus iron would be, in structure, homogeneous or crystalline. These two forms of iron are very far removed from each other. To repeat, the one is plastic, welded at a white heat; the other is fused and cast.

Now, is the marked difference in these two forms of iron due entirely to the way in which the particles are united or put together? Not at all. There comes in a subtle presence that is always found in iron to a limited extent. I will not stop to tell you how this curious element can be increased, or how it can be mostly taken out of iron; but the process is very simple. Neither will I speak of a few other elements often present in iron. But let me introduce to you this mysterious personage, Mr. C., one of the fellows that can be either an angel of light or of darkness, as he exists in the diamond, or in charcoal, or lampblack. It is from the dark regions, however, that he comes into iron, and makes himself felt just in proportion to the degree of his presence. Less

than one-fourth of one per cent. is all of Mr. Carbon that wrought iron has any use for, and we find it soft and malleable. But in cast iron is found quite an increase of carbon—from two to five per cent.—and that is all the difference between them, aside from structure due to casting on the one hand, and welding on the other. You see carbon in iron is like the devil in the dentist's wife's mother's grandmother—the less he gets in the more gentle and pliable will the old lady be; but a little more of him makes her hard and refractory.

Neither form of iron yet described is of use for edge tools. While the one is too soft to carry an edge, the other, though hard enough, is brittle, and neither can be tempered by any method now known.

But right between these irons we find steel, which is simply iron with a little more carbon than is found in wrought, and a little less than is found in cast iron. Tool steel contains from three-fourths of one to one and a fourth per cent. of carbon, while Bessemer rail has a little less, and extra hard a little more than this. Then, as to structure, all modern steel (since the days of Huntsman, 1760, who first made cast steel) is cast. At the present day, nothing is accounted true steel that is not homogeneous and crystalline. In this respect, steel is akin to cast iron. But, on the other hand, it is soft and malleable, and is thus allied to wrought iron. But the interesting and wonderful fact about steel is that it can be made intensely hard by sudden cooling, and then, by a gentle heat, tempered to any degree of hardness required, down to a spring temper, or softer. Hence its adaptability for all kinds of edge tools. Its crystalline character, from having been fused and separated from slag and cinders, in pouring, insures great toughness and endurance in its structure. And thus, in cast steel we have a perfect marvel in susceptibility. I shall not attempt to tell you its uses. No man can enumerate them. It speaks for itself, not only in swords and spears, and pruning hooks, plowshares and edge-tools in general, but also in the most delicate machinery, from the finest spring in your chronometer to the ponderous ones in the Corliss engine.

At first, steel was a rare production, almost like the precious metals, for want of means to cast it in large quantities, and it was regarded as a treasure too precious to have in great abundance. One scarcely thought of a tool larger than a darning nee-

dle being all made of steel. But since the Bessemer process was introduced, about 1856, even wagons have been largely ironed with steel. And to-day ninety per cent. of all the steel made in this country lies stretched out from gulf to lakes and from ocean to ocean; and the iron horse, with power generated in a ponderous steel boiler, goes thundering over the Bessemer steel rail by day and by night.

For a moment let us imagine ourselves in possession of every metal we now have, every alloy and metallic compound, including wrought and cast iron, yet without that one definite compound, steel. Where would we be? What could we do? What could the world do? Could we fill, extract, or make a tooth? Talk about cotton being king? Or of gold being the king of metals! Our true king is mightier than these. He sits by his own inherent power to rule. Cut him down? What with? Ah! isn't he a Sampson? But like Sampson of old, with a little less hair—take a little carbon out of him, or put a little more into him, and where is he?

But after all he is the work of art. We made him ourselves. Nature never could have done it. But how did it happen that iron, with just so much carbon in it, and no more, no less, can be tempered, while nothing else can be? Did it *happen*?

RANDOM THOUGHTS FROM THE LABORATORY.

BY L. P. HASKELL, CHICAGO, ILL.

Read before the Illinois State Dental Society, at Quincy, Ill., May 9, 1882.

The dental laboratory ought not to be a machine shop for the manufacture of steam-engines and gimeraeks, but should be fitted up for, and devoted exclusively to, the operations of the mechanical dentist.

Too often the laboratory is a small, out of the way, ill-lighted place. It should be a well-lighted, convenient room, and large enough to contain all the necessary appliances. The benches, drawers, plaster table, lathe, etc., should be conveniently arranged.

The tools should be arranged in racks, at the back of the bench, and never put into drawers. Have no tools on the bench

but such as are needed for dental purposes. Keep no duplicates on the bench as they only tend to confuse, if you are in haste. Have a place for each tool, so you can place your hand upon it, without hunting for it. When done using it put it into its place. *System* will enable one to expedite work.

Whatever may be said in favor of the so-called "modelling compound," and it is undoubtedly better than wax, yet for *all* purposes, I find nothing so good as *plaster*; in partial lower cases, nothing else is reliable from the very nature of the case. The very difficulty of getting a plaster impression of some of these cases, shows that nothing else will give a *correct* impression.

In preparing the cast for making a die, a little time spent in doing it in such a way that it will drop readily from the mould, will repay the operator, as it will deliver itself better than it can be drawn.

One reason why so many dentists dislike metal work, is on account of the difficulty they have in using *zinc*, and it is about time it was banished from all laboratories. *Babbitt metal* is the only metal suitable for dental dies, as it has *all* the qualities desired; but remember that it must be a genuine article, as most of that which is sold is inferior. The genuine cannot be bought for less than forty-five cents per pound. To insure a good article, make it as follows: 1 part copper, 2 parts antimony, 8 parts tin; to be melted in the order named, in a crucible; when the antimony and copper are melted, drop in the tin and turn off at once into small ingots and remelt.

For counter dies use lead with one-eighth tin added; coat the die with whiting, and do not turn the metal very hot. Having used the above thirty years I can testify to its excellence.

Many years' use of continuous gum work, the heaviest sets of teeth made, and yet *without defined air chambers*, has fully demonstrated the uselessness of those appliances. All that is necessary is to raise the plate slightly over the hard palate.

You say you have no demand for metal plates. That is your own fault; create a demand. Many of your patients rely upon *your judgment* as to what is best for their mouths. If you are not posted in relation to the undesirableness of rubber and celluloid plates in the mouth, lose no time in getting posted in regard to the matter, then inform your patients and give them the

opportunity of deciding upon the subject. While many cannot afford anything better, others will choose the metal.

For partial plates, upper or lower, I find gold preferable to the vegetable bases. Silver (pure, and alloyed with platina) comes next to gold.

These plates should always be doubled around weak points, at least. Twenty karat gold and twenty karat solder are none too fine. Clasps I do not object to when *properly adjusted*. They should, in all cases, be attached or adjusted by the mouth and not by the plaster cast, however perfect *it* may appear to be.

It is strange how few dentists shape their plates and gums, so as to restore the features, especially the expression arising from loss of the canine teeth.

Then too many sets are arranged too short, producing a compressed condition of the lips.

In antagonizing, too much care cannot be taken to prevent the front teeth from *interfering* when they overlap, as it is proper they should do as a rule. A good margin should be allowed for settling of the plates to the gums. Many a set is rendered troublesome, if not almost useless from this cause. Equally should care be taken to prevent the last molars from meeting too quick, resulting as it will in displacing the plates, and in case of lower plates, pressing them into the gums, and causing irritation that the dentist often endeavors to remedy by filing the plate instead of shortening the teeth.

In 95 per cent. of upper sets, there is more absorption upon the left than upon the right side, in the place of and adjoining the canine teeth, requiring longer teeth and thicker gums to restore the contour.

In swaging upper plates don't waste time in trying to avoid cutting them in front. The plate is made stronger at its weakest point by cutting and lapping. Besides, if the teeth are to be soldered to the plate, there is less danger of warping the plate than if it had been swaged without cutting.

Many lower plates are rendered troublesome by being made too wide, so as to ride on the muscles and loose integuments, thereby displacing the plate and irritating the flesh.

I find it absolutely essential to use plain teeth, in order to produce a correct expression and antagonizing. The gum-sections are so arbitrary in arrangement, that, with occasional exceptions,

I deem them entirely inadmissible, and have not used a half dozen sets in as many years.

I have used celluloid in that many years because it is more desirable for a gum than pink rubber.

I have found, from long experience, that it is better, as a rule, to insert the temporary set at once, say within forty-eight hours after the teeth are extracted. The gums prove less troublesome under a plate and the patient is not subjected to the annoyance of being toothless for several weeks or months; and it is especially desirable, in case the front teeth or their remains are extracted at one time, as in that case the artificial teeth can be inserted in the sockets of the old teeth, producing, of course, a very natural expression. After a few months the necks of the teeth will be upon the surface of the gums still looking well. Patients will thus wear a set with comfort for a year, and I have known them to wear them for five.

In emergencies, as in case of parties who cannot be isolated for a short season even, and do not wish to be without teeth at all, I sometimes extract and insert a set, without the patient leaving the chair (in three hours, or even less,) by simply making a plate of gutta-percha, such as is used for trial plates, attaching the teeth with the same material. Have had such sets worn a year, although intended for only a few months.

For permanent sets, "Allen's Continuous Gum," when properly made, remains pre-eminently the *only* perfect method of inserting artificial teeth. Many have made a failure in its use from imperfect knowledge of constructing it, or from a slipshod method of doing it. The artist realizes in its construction that a "thing of beauty is a joy forever."

Why are there so few good mechanical dentists—those capable of making anything from rubber, up to a continuous gum set?

The first and principal reason is, that the general use of vulcanized rubber has made it, to a great extent, unnecessary to know how to do any other kind of work; and, as a secondary effect, instruction in other work has been very limited, so that the dental student starts out from college, or his preceptor's office, with little preparation for the better class of work.

The remedy for this will be, first, more thorough instruction in college and in the dental office, in all kinds of metal work.

In the second place, let there be more generally a *division of practice*, the student learning that branch for which he seems best adapted. If he *has not mechanical* genius, by all means let him follow some other avocation.—*Illinois Transactions.*

Editor's Specials.

"Write the Vision and make it plain."

IS ANYBODY HIT?

OUR * correspondent appears to be striking at something or somebody. We don't know; but he's spicy, and we like variety. Now let somebody write us a solid, serious, sedate, Jeremiaical article to balance it. We want all the sides of all questions.

POOR LINDLEY MURRAY.

HE was for forty years bedfast, and now, long years after his death, his twenty-second rule in syntax is thus violated: "In such a case absorption is absolutely sure to take place and the tooth expelled." And this outrage is perpetrated by a journal with a half dozen editors, or more, all of them "scientific." If the dead are to be treated so cruelly, we don't intend to die.

AMMONIACAL DEGENERATION.

THIS caption applies to the entire body, but at present it is proposed to notice it mainly in its relations to dentistry. Destructive as we find the four varieties of dental caries to be, it is probable that ten or more teeth are lost by this form of degeneration destroying the sockets, for every one lost by caries. The breath becomes loaded with offensive odors, the perspiration follows suit, the victim pines, debility ensues, loss of appetite comes on, nausea supervenes, the mucous membrane of the mouth becomes reddened, the saliva usually becomes ropy and tenacious, secretion of

mucus is abundant, the gums, especially their free margins, become swollen, and bleed from the slightest injuries; if lime salts are present in the buccal fluid, they are precipitated on the teeth, because the fluid can no longer hold them in solution, for want of its free carbonic acid, which has been taken by the abnormal ammonia; the periosteum, having but low vitality, dies, and consequently the thin margins of the sockets, or alveolar processes, suffer necrosis, and are dissolved away; the precipitated lime salts are deposited closer and closer to the margins of the sockets, thus mechanically causing pressure on the socket borders, while by their porosity, when thus deposited in mass, they retain the abnormal mucus, which putrefies, giving more ammonia, to cause still further precipitation of the salts, by taking their proper solvent, carbonic acid, from the saliva: and this degeneration usually goes on and on till the poor victim disgusts both himself and his friends. "Lord, by this time he stinketh."—John xi., 39.

Through all this the teeth often remain sound, but they rapidly loosen, and are often picked out one by one, with no instruments but the thumb and finger of the patient.

Now, the above is not a description of a "disease so-called," for we were very familiar with it as a genuine disease, and we "so-called" it, and successfully treated very many cases of it before a thought of practicing the specialty of dentistry had entered our mind; and we verily believe that our success in its management had much to do in causing Prof. J. Taft to offer us a partnership in dental practice, while, as yet we had given but little attention to the details of dentistry. A man familiar with the principles of surgery and chemistry could not greatly err in the treatment if he put his knowledge of these into practical use. When the disease has progressed to the extent of death of tissue, as in necrosis of the bony margins of the sockets, or in granular degeneration of the periosteum or the gingival tissues, he will, in obedience to the demands of surgical science, cut beyond the dead line. He will recognize that he must have living structure for his foundation. He will, in most cases, see a copious deposit of salivary calculus, and his chemical science will tell him it is out of place, and will tell him how it got to its improper position. He will find ammoniacal compounds in the buccal fluids, which his chemistry teaches him should not be present. He will now understand why the lime salts are deposited, when they should be held in solution

—that the free carbonic acid, normally held in solution by the fluids of the mouth, has been all taken therefrom by virtue of its affinity for the ammonia, which is abnormally present in the mouth, and the lime salts are not dissolved.

In the light of his two sciences he will recognize that he has a patient to care for who requires both local and constitutional treatment. So he will remove the calcareous deposits from the teeth, and also the dead or unrestorable osseous and soft tissues. He will take all prudent precautions, by the proper use of solvents, antiseptics and stimulants, as each case may indicate, to secure healthy granulations. At the same time he will, by constitutional treatment, endeavor to arrest the special degeneration, and prevent the excretion of ammonia by the salivary glands and mucus follicles; and when he has succeeded in this, tartar will not be precipitated.

The disease we have tried to describe is akin to the scorbutic maladies, and it is often arrested by the same general treatment. As ammonia is an alkali, the use of acids is indicated. Great good is done often by the free use of acid fruits, such as oranges, lemons, grapes, strawberries, etc., as well as by an indulgence in fresh vegetables. As nearly all the salts of ammonia are soluble, almost any acid which the stomach will tolerate, will do good. Some prefer the mineral to the vegetable acids, and accordingly prescribe elixir vitriol, dilute sulphuric, nitric or hydrochloric acid.

But while we advocate constitutional treatment, let it not be supposed that we neglect that which is local. When a young physician, with not a dentist within twenty miles of our office, in order that we might properly treat a bad case of this disease, we got the privilege of a bench, forge, vice, tongs, hammers, small steel bars, etc., from the village blacksmith, and made a set of scalers, chisels, gouges, etc., and with these and a redressed dissecting case, we removed, at a series of sittings, all signs of devitalized tissues, bathed the wounded surfaces freely with pyroligneous acid, following this with a solution of chlorate of potash and white sugar. With our scalers (which were not as neat as some now in the market) and soft linen rags, foreign matter was carefully kept from depositing on the teeth.

In a week or two the ammoniacal odor was gone from the breath, a tooth brush could be used, the gums assumed their nat-

ural appearance, and teeth which had to be tied to keep them in place, became firm in their sockets, tartar ceased to deposit, the health was regained, and the sad little girl (little, but twenty-five years of age) became as lively as a cricket, and as musical as a mocking bird.

Now, a case like this could not have been cured without the local treatment; nor do I believe that her constitution had the energy left it to bring her back to health, without aid to the general system. Mistakes are made by many in not making a thorough removal of all devitalized tissue. Dr. Riggs, of Hartford, deserves the gratitude of the public and the thanks of the profession, for making thorough work in this direction, more fashionable than it formerly was, and also for devising and introducing convenient instruments with which to perform the operation. We regret that we have not had opportunity to hear Dr. Riggs himself in regard to the pathology and treatment of this disease. Some of his ardent admirers, while making him blush by blackguarding (by which we mean fulsomely eulogizing) him about his disease, intimate that he regards it as not constitutional, and relies solely on local treatment. We hope we have misunderstood the case; for if such are his views, the pathology of the disease is much better understood by some others than by him. Local treatment suffices only in cases where the constitution is naturally strong, and where there is still vigor enough to throw off the disease after the tartar and devitalized tissues are removed. It is probable that the hemorrhage and pain which are incident to the operation may act as a stimulus, arousing the system to increased energy, which is likely to aid much in overcoming the morbid state; but there are many cases that, if left to the vital powers after the operation, will prove failures, the teeth loosening rapidly.

NOT CONCLUSIVE.

Our caption corresponds with the Scotch verdict, "Not Proven," a verdict not known to English and American jurisprudence, but still expressive.

On page 99 of Transactions of the American Dental Association for 1881, the subject under consideration being "Chemical Abrasion," we find the following: "In the second number of the

OHIO STATE JOURNAL OF DENTAL SCIENCE, the editor, in reply to the query, 'If in chemical abrasion or corrosion the abrading agent is recognized,' answered, 'Yes; lactic and acetic acids,' basing his conclusions upon the following reasoning: 'In abrasion the surface is left clear and clean, the organic and inorganic matter being removed to the same extent. This proves that the abrading agent forms soluble compounds with all tooth substance, otherwise debris would remain. It also proves that the corrodent dissolves the two kinds of tooth-material with equal facility, for they are dissolved and washed away to the same extent.'"

"He says further: 'Of all known acids, but two have the necessary solvent powers above described; these are lactic and acetic acids, and these have the power only while in the nascent state.'" The paper (by Dr. Isaac B. Davenport) goes on to say: "While this may well explain that denuding process which we sometimes see on the labial surfaces near the gum, it is *not* a complete explanation of abrasion of the *cutting edges*; for while these acids may cause this condition, they are not the *only* acids which do it; nor is it necessary that the corroding agent be one that removes equally the organic and inorganic constituents; for if *any acid* which dissolves limesalts be brought into contact with the cutting edges of the teeth the same result will follow, viz.: a smooth, abraded surface: because the soft organic materials will be polished away by the food, lips, and tongue, as fast as solution of the inorganic elements advances."

We have quoted at length because we wish to be absolutely fair. But if the good brother will do a little thinking for himself he will not need the JOURNAL to tell him that the food, lips, etc., do not polish away the organic matter as fast as the limesalts are dissolved; for in the most common form of caries, which is caused directly by hydrochloric acid, he always finds large proportions of organic matter not "polished away." And even in "white decay," caused by nitric acid, where the organic materials are much more thoroughly disintegrated, they are not "polished away by the food, lips," etc.; and if he polishes them away, the surface bears no resemblance to the hard, definite, polished surface found in the genuine chemical abrasion which is one of the four varieties of dental caries.

And if the teeth—front or others—are corroded by acid fumes in the chemical laboratories, as referred to in the closing

paragraphs of the paper, the corroded surface is not at all like that caused by nascent lactic, or acetic acid, in the familiar variety of caries under consideration. The surface is less definite, and the subjacent dentine is not consolidated, as it is always found to be in genuine chemical abrasion.

Nor does the author of the paper strengthen his position in the least by calling in the aid of a scientific man, whose attention has been but recently directed toward the teeth. The most scientific, if taken off the line of their studies, are apt to speak unadvisedly, as in this example, page 101: "The destructive agent in these cases is not any *peculiar* acid, but *any* acid, provided it is volatile." There is the old fashioned indefiniteness that was so annoying when we came into the dental profession. Carbonic, hydrocyanic, carbolic, and many other volatile acids are not likely to corrode the teeth, and no one knows this better than the author of the paper and the learned man that he has quoted. But we have here a very striking illustration of how little original thought is extant—an evidence that an erroneous sentiment, once promulgated, is adopted and used without a thought of its error, thus leading minds into darkness rather than light.

In view of all this we must regard the conclusion arrived at by the author of the paper as not warranted by the facts, that the "cause of the so-called 'spontaneous abrasion' of the older writers is the direct contact with the teeth (by inhalation) of any *acid*, mineral or organic, which is capable of dissolving limesalts." Acids capable of only this will corrode the teeth; but, as we have already seen, the phenomena present in true chemical abrasion must have, as their exciting agent, an acid capable of dissolving both the organic and inorganic matter of the tooth. We think it quite probable that we have spent more time on this subject than any other man alive or dead, and we have no wish to advocate or disseminate error. And while we differ with the views of our brethren, we do so kindly, and have no wish to be dogmatic. We are glad to see others investigating.

DENTAL EDUCATION.

WHEN this subject is discussed, whether in the associations or in the journals, the question of the true *status* of dentistry seems

to come to the front. Is dentistry a profession? or is it a specialty of medicine? A diversity of opinion exists, and probably will for some time. Those who claim it to be a medical specialty assume that, therefore, it should be taught exactly as other medical specialties are taught. But such assumption begs the question; for it is not yet demonstrated that these specialties are properly taught. It may be there is room for improvement. That profession which for thousands of years totally failed to teach the specialty of dentistry at all, may have failed to adopt the best methods for teaching the other specialties. "To err is human." We verily believe if we were the autocrat of all educational efforts—could say to this man, "go"; to that one, "come"; and to all of them, "do,"—we could attach a college to an ophthalmic hospital, and greatly advance the study of ophthalmology beyond present methods. It is worthy of note that the first dental college the world ever saw did more to advance the science and art of practical dentistry in ten years than all the medical colleges had done from the dawn of science till the establishment of dental schools.

USE YOUR TOOLS.

WHEN but a boy we knew two mechanics working at the same trade. The one had a great reputation for skill, and was very successful. We visited their shops. Contrary to our expectation, the man of skill was but poorly supplied with tools; but he was a judge of good work, and his tools were forced to duty according to his ideal. The man of less repute had a great variety of instruments, of the most approved patterns, yet he lacked the knowledge and skill to use them.

In science and literature we witness similar things. One man may have but a few text books, yet, if he has mastered them thoroughly, he will often eclipse his competitor whose shelves are laden with books that he does not know how to use.

So in language, the man who is master of his mother tongue will often express his thoughts more clearly, and with more elegance than will the man who is versed in a dozen languages, dead and living. David Crockett was reproved for disputing with

a classical scholar. In reply he inquired, "If a man is a natural fool, what good will a knowledge of twenty languages do him, unless that it will give him twenty ways to talk nonsense?"

To the man of science, facts and principles are tools. Some men called scientific can use their facts; and these may be called ready men. Others, with equal reputation for science seem to be wholly unable to use many of their simplest facts. They are unready with their tools. A case of this kind is at hand:

On page 136 of the *Transactions of the American Dental Association* for 1881, a highly educated professional brother, whom we highly esteem, uses this language, according to the report: "One might as well say that nitrogen dioxide would sustain life, as to affirm it of the monoxide unless it can be proved that it is more readily decomposed."

Now this speaker had the fact—the tool—bright, clear and polished, but we fear he has left it to rust. He knows as well as other people the great contrast between the monoxide and dioxide as to their chemical properties. For example, their behavior in contact with decomposable matter. While the monoxide is so readily decomposed that it rusts our instruments, even when greatly diluted, that it burns carbo-hydrogens by *eremacausis*—that it is ever ready to give out oxygen, and does give it at common temperatures, the dioxide is so greedy for oxygen that, like the horse leech's daughters, it cries, "Give! Give!" and without waiting for the gift, it takes oxygen from almost anything containing it. Suppose the dioxide passes into the circulation, it takes the oxygen of reserve from the red corpuscles, and is thereby converted into nitrous acid of the old nomenclature, which is a violent escharotic, but which at once takes oxygen from the watery portions of the blood, and is thus changed to nitric acid, a most deadly caustic. And that this affinity of the dioxide for oxygen is both strong and prompt may be proved by a very simple experiment: Place any ordinary metal, as copper, in a solution of nitric acid, and gas bubbles rise. These are composed of the dioxide, which is colorless; but it has scarcely passed into contact with atmospheric air till it shows orange or red fumes. These are nitrous acid, two equivalents of oxygen having united thus promptly with the dioxide, even though the gaseous state is unfavorable to chemical combination.

Now, is there no difference in breathing two gases when one

takes oxygen from the red corpucles, and the other does not? (We are waving for the present the question as to whether or not the monoxide, or nitrous oxide, supports respiration to some extent. But our views are unchanged on this.)

We know by experience that the dioxide diluted by sixty times its bulk of atmospheric air is a dangerous compound to breathe; and it is pretty well recognized that a single breath of dioxide would prove fatal if it could be breathed, but fortunately its contact causes the epiglottis to shut down in a tonic spasm.

The common expression that all the compounds of nitrogen with oxygen are unstable is apt to mislead. It is by many understood as equivalent to the expression they are easily decomposed. This is true, strictly speaking, of only nitrous oxide and nitric acid. They readily give out oxygen, but the intervening compounds, as we have already noticed, do not readily yield oxygen, but with a powerful force of affinity take it from other compounds containing it.

But we intended but half a page, and our pencil has rebelled; and the result is unsatisfactory, as this is not a full discussion, but is more than a notice.

DON'T CHEAT.

At any rate don't take the little all that one man possesses and bestow it on one who abounds in similar possessions. We have seen this: "Let us then follow Paul's lead where he animadverts upon 'holding men's persons in admiration for advantage.'" The above is found on page 168 of the Transactions of the American Dental Association; but the expression belongs to the one little epistle of Jude, who must be treated respectfully, for he is "Judas, not Iscariot," and his expression, verse 16, reads thus: "Having men's persons in admiration because of advantage." But it is probable the mistake is in transcribing, as the writer is familiar with the Bible.

COMBINATION LOWER PLATES AGAIN.

LATELY we recommended, in the JOURNAL, that lower plates be constructed by combining Watt's metal, or the Watt and Wil-

liams "Columbium," with rubber. We prefer the former metal, as it is stronger, runs sharper, thereby insuring a better fit. We regard the Watt and Williams metal as better than anything obtainable, except the Watt's. It will flow freely through a crevice that other alloys in the market will not begin to penetrate. Spencer & Crocker have kept the "Watt and Williams" on sale, while the other, and newer, has not been put in the hands of dealers yet. It is expected that it will soon be on sale by Ransom & Randolph, through whom other dealers can probably obtain it.

The George Watt & Co's molding flask has been on sale by Spencer & Crocker, and was kept by White formerly (if not now) but it is not essential to the work, though a great convenience. The patterns are in a good state of preservation, so that they can soon be prepared if the demand should justify.

This method, as we described it, in a recent number, is not at all new. It was extensively used by the late Dr. B. F. Rosson, Dr. A. A. Blount, and others.

We have been flooded with private letters on the subject since the item appeared in the JOURNAL, and we have here tried to answer the many questions, or rather the oft repeated ones, in a lump, as we have not time and strength for such a heavy private correspondence.

SCIENTIFIC EDITORS AND SUCH.

THE scientific editor, he of the *New England Journal*, you know, doesn't like our article on ammonia read last winter at Columbus. This is sad, (for him?) and we'd feel cast down and discouraged, were it not that the most experienced teacher and editor in our profession, and who, we believe, is "scientific," only that he does n't say so on the back of his "little book," has given his opinion that the article will hold its place permanently in the literature of our profession.

The "Scientific" objects miscellaneously to the article, his first objection being that it is "partly antiquated." That is very discouraging, for we are "partly" that way, too, and are daily growing more so. But this morning, in a short lesson, we read, "The earth is the Lord's, and the fullness thereof." This also is

"partly antiquated," both in style and statement, but it is true, all the same.

None but scientific editors would suspect the article of teaching that nitrogen is not found in vegetables.

"That putrefaction is the process of decomposition of azotized bodies, and fermentation that of non-azotized substances, is again a general statement without sufficient basis." This from our "scientific" friend; but while straightening us up, he should also rectify Liebig, who says, "Fermentation and putrefaction are processes of decomposition of a similar kind; the one of substances destitute of nitrogen, the other of substances which contain it." No reader need be told that azotized bodies are those which are in part composed of nitrogen. We were not aware that we had so nearly used the language of Liebig, and, by some he is regarded as "scientific."

But, speaking of Liebig, reminds us that we are just now going in direct conflict with his instructions. He says, in reference to the criticism of the opinions of others: "If the result of the criticism be merely negative, if it do not suggest more correct ideas in the place of those which it is intended to refute, it should be disregarded."

A friend of our boyhood, after marrying and rearing a family, had the misfortune to suffer from softening of the brain. The last years of his life he contradicted every thing he heard. He would listen to the conversation of his wife and children, and at the end of each sentence say, "That's a lie." As a negative character he was the equal of the scientific editor, only he did n't "ramble" so much.

Then we are told, in a most scientific, if not dogmatic manner, that, "When sugar ferments no kind of oxidation takes place; nothing is added; it gives just its weight of alcohol and carbonic acid, hence no oxygen comes into play." If not into *play*, possibly it comes into work, for, if our good brother will look again, perhaps he can find an addition of oxygen and hydrogen, equal to one equivalent of water. At least Liebig thinks it is there. He says: "The alcohol and carbonic acid produced by the fermentation of a certain quantity of sugar, contain together one equivalent of oxygen and one equivalent of hydrogen, the elements, therefore, of one equivalent of water, more than the sugar contained. The excess of weight in the products is thus explained

most satisfactorily ; it is owing, namely, to the elements of water having taken part in the metamorphosis of the sugar." Notice that it is not water, but the *elements* of water that do the business.

"The ordinary state of hydrogen is gaseous, which is not favorable to chemical combination, is again such a general, doubtful statement." So says the "Scientific"; but what is doubtful? Is the gaseous state favorable to combination? If so, it is strange the old fellows like Turner, Gregory, Regnault, etc., never found it out. Or is hydrogen not ordinarily gaseous? The paper was not speaking of combinations with hydrogen, but hydrogen, itself. It is the "scientific" man that has made "such a general, doubtful statement." When an element is spoken of without qualification its free state is usually meant.

Again, the "scientific" says: "The process of putrefaction never before has been explained in the way it is done in his (our) article, as if oxygen was needed ; by no means."

Well, as we are too ill to leave our room and go to our library, and as Liebig is with us, listen again to him. He seldom fails us in an emergency. We shall quote him at some length, thus: "What then, we may ask, is the matter in ferment which excites fermentation, if neither the soluble nor insoluble parts possess the power? This question has been answered by Colin in the most satisfactory manner. He has shown that in reality *it is the soluble part*. But before it obtains this power, the decanted infusion must be allowed to cool in contact with the air, and to remain some time exposed to its action. When introduced into a solution of sugar in this state, it produces a brisk fermentation, but without previous exposure to the air, it manifests no such property. The infusion absorbs oxygen during its exposure to the air."

The heading of the section in Liebig, from which the above is quoted, is "Yeast or Ferment," and in defining it he says: "This substance . . . possesses all the characters of a compound of nitrogen in a state of putrefaction." And it has these characters only after it has been exposed to the air and has absorbed oxygen. What becomes of the "scientific" man's dogmatic statement? It turns the heads of some to be placed in positions of responsibility. They think themselves wondrous wise.

And further, if necessary, at the close of this chapter, Liebig says: "Fermentation may be considered as a process of combustion or oxidation of a similar kind, taking place in liquid between elements of *the same matter*, at a very slightly elevated temperature, and putrefaction as a process of oxidation, in which the oxygen of *all* the substances present comes into play."

Oxidation is then essential to putrefaction, according to Liebig. Our "scientific" may know more than he, though we doubt it, but it is not now a difference of opinion but a question of fact. Bear in mind our "scientific" friend has said, "The process of putrefaction never before has been explained, . . . as if oxygen was needed." Is his statement true? "By no means." Be careful next time, good brother, dogmatic statements are dangerous.

We might go on and refute every position of our critic, but it takes too much space. Possibly we have used the term "molecules" in a sense he is not used to; but tyros know, and scientifics ought to learn, that matter is constantly carried out of us by the emunctories, and we hardly think it is carried out alive. We have given this criticism more than usual attention. The critic is new, and ought to be welcomed into our ranks. And the article criticised is the most thoroughly studied of any we ever wrote, with possibly two exceptions; and we aimed to teach truth, and believing yet that we have done so, we don't like to have our teaching neutralized by what we regard as carping criticism. This explains the great length of this special. If our article, on careful reading, does not teach it, we can easily show our friend why developing girls often have more need of pickles than their mothers, and also why they sometimes have more dead matter in them.

APPRECIATION.

"I care for nobody! no, not I,
For nobody cares for me."

So thought and so sung lonely Mary, in the grape arbor, till bashful Bob became bold, grew desperate, crept into the arbor, and stole something with a smack, said something, fastened one of her fingers to itself, and left—after he must; and on her way

to the house Mary still sung—the same tune, perhaps—but somehow the words were different, as—

“I care for somebody now, do I,
For somebody cares for me.”

The plodder in the pathway of science often feels about as lonely as did Mary in the arbor. Unable, perhaps, to often see his co-laborers and fellow-craftsmen, having few or no opportunities to look into their faces, and thus intelligently guess at their views in reference to the results of his toils, and, himself tired and therefore disgusted with his best efforts, he cares little for himself, and feels that others care still less for him or his labors. He is ready to adopt the sentiment as expressed in the arbor by the lonely girl.

But when those who know him best show that they also love him best by rallying around him with smiles and cheer—with presents to lighten his labors—in short, with every possible proof that not only do they appreciate, but highly enjoy, the results of his lonely hours of effort and toil, he is made new. The whole face of nature becomes changed. The grass is a shade greener, the trees are taller, the skies deeper blue, the birds more musical, the rainbows more promising, the world seems better, life is more hopeful, and heaven seems nearer.

Something occurred in the experience of the editor of the *JOURNAL* that suggested the thoughts above. The members of the Madriver Valley Dental Society know us, personally and professionally, better than do those of any other society. They are close neighbors. They have seen our trials and failures; and if we had enjoyed any triumphs they would have witnessed them. Well, these brethren, sacrificing the home and family joys incident to the anniversary of our independence, devoted the late Fourth of July to the promotion of our happiness by visiting us in our humble little home; and before leaving, through Dr. Berry, they presented us with a beautiful set of *Chambers' Encyclopedia*, Edinburgh edition, ten volumes. As all was a complete and most sudden surprise to us, we were in no mood for speech-making, and consequently the eloquent address of Dr. B. was unmet by a response worthy of the name—or it would have been had not the dear wife rallied to the rescue. A woman can do anything, so she dined the members, and cordially invited the society to meet

with us again, and jocularly suggested that next time it would be better to surprise her, as she could bear it better.

Though quite too flattering, we shall publish the speech of Dr. B., if we can get it, as the members all want it.

The Madriver Valley Society has been taking a rest. An arrangement was made to resume its regular meetings, the next one to occur at Middletown, the 19th of October next. It is to be hoped that it will resume its former activity and energy; and at one time it was one of the most active of all our local societies.

We can devoutly ask that God may bless the Madriver Valley Society, and all its members.

The presentation speech of Dr. Berry was, in substance, as follows, though no synopsis can do it justice:

“DOCTOR WATT: The anniversary of our national birthday is an appropriate time for us to call on the father of the Madriver Valley Dental Society. As members, we beg you to accept our heartfelt thanks for the paternal regard and kindness you have ever shown us.

“During the long period of your life, though never free from pain, and often physically disabled to such extent that other men could not, and would not have tried to think, your mind has been always active, maintaining its equanimity, and even cheerfulness, cordially ready at all times to enlighten those seeking information, even though they often trespassed on your precious time and taxed your unwearying patience.

“The Madriver Valley Dental Society, whose sessions have been for a time suspended, but which we hope is now to be revived, with renewed energy, was the best of our societies. And its pre-eminence was largely due to the light shed on it by yourself in the consideration of the questions before it. We met you at all its semi-annual meetings, unless you were absolutely detained by ill health.

“We rejoice to see your improved physical condition. And we hope that ere you pass to the spirit world—where no doubt your works will be better appreciated than they are here—you will yet remain a blessing to us and to our profession for many years.

“The members of the Madriver Valley Dental Society, as a small token of their regard and esteem for you, and in recognition of your unselfish life, your arduous and invaluable labors for our profession, present you this copy of *Chambers' Encyclopedia*.”

A PHENOMENON.

MANY years ago a friend of ours visited a lunatic asylum, and was piloted through the institution by a genteel and intelligent gentleman, who explained everything to the satisfaction of the visitor. When about to leave, the gentleman asked his guide if he was the superintendent. He said no. "The attendant physician, perhaps?" "No." "Are you not connected with the institution?" "Oh, yes, sir; a patient," said the pilot. "Indeed," said the visitor, "how is it that a man of your intelligence is a patient here?" He replied, "It is all right; I was fairly out-voted. I thought all the world had gone mad. All the world thought I had, and here I am, on a fair vote."

The chairman of the Section on Nomenclature and Terminology, in the American Dental Association, either has gone mad or he thinks the entire dental profession has. That a man will, year after year, present to an association such gibberish--such a jumble of gallimatian utterances--and try to pass them off for a report of a committee or section, is the strangest phenomenon we have witnessed, unless it be the patience or stupidity on the part of the association that tolerates it. That a large body of professional men will sit and listen to unmeaning twaddle that conveys no ideas whatever to the listener--that men will listen to a conglomeration of confused sounds that they can not possibly understand, and which he that gives them utterance can understand no better, is too strange for belief, only that we have documentary evidence of the truthfulness of the strange statement. Shall the American Dental Association thus continue to make itself the laughing stock of learned men? If it is not such now it is only because it has sunk itself beneath contempt, and consequently too low for laughter.

And think of the author, or rather the compiling borrower of all this nonsense, complaining thus: "I ask you to patiently study this with former reports, so that you may not come, as many of the leading lights in dentistry have come, to my office after the transactions had been out over a year, and given no evidence of their having even glanced over my former reports on this subject."

The truth is they could give no evidence they had even glanced at them. The author could give no evidence that even

he had ever seen them. In a paroxysm of insanity a man may harangue an imaginary crowd; but when he becomes lucid he can do nothing in the way of repeating his crazy oration.

We would be less pointed, were it not that the inflictor of this stuff can write and speak good sense; and when he is not willing to do so, he should not think hard if the Association ask him to remain quiet. But if the humiliation is to hang over the Association still, we shall endeavor to bear it as we do other afflictions.

To prove that we have not over-stated the facts in the case, we inflict on our printers and readers the closing paragraph, if it be a paragraph. It is as follows:

"In conclusion, the following are the Alwato namings for the principal divisions of biological and medical science:"

Bodo, b (io), ski; anatomy.

Bodo, v (io), ski; physiology.

Bodo, hal, ski; hygiene.

Bodor, ski; surgical pathology.

Bodolr, ski; medical pathology.

Bodol, ski; surgical therapeutics.

Bodorl, ski; medical therapeutics.

Bodo, baw, ski; direct anatomical, ingrediential departmentology.

Bodo, bo, ski; anatomy proper, anatomical promorphology.

Bodo, bu, ski; anatomical mechanics.

Bodo, biu, ski; anatomical sexology.

Now, reader, bear in mind that this professes to be "dental nomenclature." We have selected the most reasonable looking paragraph in the so-called report. The reader will forgive our calling attention to it. We hope we shall never again have occasion to copy, or even read anything so nauseating.

It is said that the following is the faculty about to be selected to fill the various chairs of the Alwato Institute of University-ski:

GULIELMUSKI H. (io) ATKINSONSKI, Professor of Bodo, b (io), ski.

STEPHENIO PEARLASH ANDREWSKI, Professor of Bodo, v (io), ski.

BENJAMINBO BERYLSKI BLYNX-HAL-BODO, Professor of Bodolr, ski.

GEORGIUSKIBO WATTSKIBODO (io), Professor of Bodo, bau, ski, biu, ski.

It is thought that other chairs need not be filled, for these four know it all; and it is hoped they will have the time and strength to tell it.

A NUT FOR SCIENTISTS.

THE evening of the 14th of June last was characterized by a sharp electric storm. Atmospheric pressure a little below average, but rising. The editor of JOURNAL wound his watch at 10 P. M. and placed it between two feather pillows, about a foot to the right of his head. The watch recorded 11 P. M. just as the clock was striking the hour. Later in the night, on examination, it was found that it had stopped at 11:23 P. M. In the morning it was taken to Captain Geo. C. Canfield, the jeweler, who found the mainspring broken into thirteen pieces. The breaks were directly across the spring, which was free from rust and flaws, and they were in a right line from center to circumference. What broke it?

IS THIS CLEAR?

WE fear we do not understand the speaker's meaning, and we try this method, hoping thereby to gain light.

On page 102 of the Transactions of the American Dental Association for 1881, we find, in remarks imputed to our friend Dr. Atkinson, the following: "It is well known that when a motor nerve is cut nearly off, spasm of the muscles to which it goes is induced, * * * which ceases at once when the remnant of the nerve, that does not seem able to convey this tension, is cut." The subject of reflex action was under discussion. We had a little experience with a motor nerve cut nearly off in the index finger of the left hand. There was, in a short time, spasm of the muscles of the back of the neck and of those which close the mouth. The remnant of the nerve was cut, or rather the entire nerve was cut off above the injury, and the spasm instantly relaxed. The distance from the point of injury to the tip of the finger was too minute for satisfactory observation; but we have thought this little case may throw some light on reflex action.

A QUESTION SETTLED.

WHETHER mercurials are directly aperient or not has been a matter of dispute. Professor Flagg is the most thoroughly mercurialized man we know; and just look into the July number of the *Dental Cosmos* and see what a diarrhea of words he has. He had a similar attack once in Cincinnati, when he was going to whisper a plastic gold filling into a tooth in less than two minutes. Some pathologists claim that diarrhea and constipation may be co-existent. It seems so—a diarrhea of words and a constipation of ideas, you know. The condition is regarded as incurable.

Correspondence.

"I charge you that this epistle be read.

CIRCUS—SCIENCE.

Editor of the Ohio State Journal of Dental Science:—

No one, not even the most knowing one, can get around the circumstance that now, on every hand, science surrounds us; it is our environment, it is flowing into us and out of us, our mouths are full of it, and it drips from our pens until it comes to pass that the man who doesn't sci. because he doesn't know, has no place in the profession of dentistry. Let the uncircumscientist go West.

Nebraska is a luminous State; point him to that, for once there he may reach conclusions from which there is no escape, and then his mind will be fixed, his environment such that he will feel himself above the auric or argentic mercenary influence of mercurial fillings, until he may lose all desire for common change, since to know, knowledge without change is the dream of the physic-gnostic. What a shock to be roused from such a dream by a constant battery in the mouth when one has never dreamed of its being there!

Is it an electric spark that flashes on my mind, a vision of the day when these amalgam cells (erstwhile lo! thirty years unchanged in form or size, and all unnoticed by my auri-optic nerves), should, by a simple conducting gride, be coupled, and with half a dozen elements my eyes be made effulgent, beaming light on all I see; my ears, than microphone, more sensitive, hear

thought? Why! man alive, the possibilities are infinite with such a group of elements all constant and exhaustless!

Many a mouth has fifteen cells, and one may have the upper and the lower grides connected with a switch lever, which, operated by the tongue, will unify or separate the series, and most marvelous results ensue.

Already in my now mercurial fancy, I have seen a battery-man take out his springless watch (run by the battery, works in illumined Geisler case), note the time, then quietly bestride his tricycle, and with the bit between his teeth, drive himself off without the movement of a leg, full twenty miles an hour!

Meantime his wife connects her superior battery with the cradle, and her inferior with the electric sewing machine, and haws and hems complacently, without a sound to wake the sleeping beauty, or the least fatigue to mar the warming welcome she will bestow upon that truant son, whose voice, two miles away, her microphonic ear caught saying, "Bill, lets go to the circus; ma won't know!" We wonder what will be the moral effect of that constant battery on Bob? He ought to have had premonitions at the circus, for the clown had mercurial fillings, with the new system so modified that, disdaining a spring-board, he could shock himself into a leap for a sextuple back somersault, and while yet in mid air, by a thrust of the tongue, short circuit the cells, and return by fore-somersaults to the exact spot from which he sprung; whence, with unabated breath, he claimed to be the world's champion Volta! on that he'd stake his pile! Yet I verily believe he would lose, in fair competition with the man who could first *jump* to the conclusion that, "Amalgam, by the action of the saliva, forms, in the teeth, *in the mouth, a constant battery*, directly affecting the entire nervous system, etc.," or the yet further conclusion that, "The verdict of science will be, no more mercurial fillings," for vaulting ambition must, in such a case, so overleap itself as never again to be the object of any sensible galvanity. Hurrah for mercurial circus-science!

*

Boston, June 27, 1882.

GEORGE WATT, M. D.

My Dear Doctor:—Some time since, I wrote you in regard to the different shading of porcelain teeth to more nearly correspond to the natural teeth. I also wrote to Dr. White, who writes to

me that the dental profession are not in accord in the matter ; that dentists would return teeth that were not of uniform shading. Now, Mr. Editor, if it is our fault, I hope you will help to bring this matter to their attention in a loud manner, for I am convinced that I am right. The more I look into the matter the more thoroughly convinced I am. The greatest trouble is with pressed block teeth, for you can not mix blocks ; but with single teeth, by taking three or four sets of the same color of body, but differently shaded with blue at the point, a denture can be made that will defy detection by any but an expert. It is time this matter was investigated, for if we are to make teeth we should certainly try to imitate nature ; and not only try, but do it. I believe it to be possible ; but if the profession do not demand the teeth the manufacturers will not make them, as they can not sell them. I wish you could get some of your old friends to take hold of this matter and write it up ; F. W., for instance, would be a good one, as anything from him would have more weight than from myself. I should like to hear from Haskell, of Chicago ; he is an old maker of teeth, and good ones, too.

I have been asked, "How are we to select the shading?" and I can only answer that there can be no rule, except that the cuspids are invariably less blue at the points than the other teeth. In some mouths the centrals will be more yellow than the laterals ; in other mouths, the laterals will be more yellow than the centrals. In some mouths you can hardly find two teeth shaded alike, and of course if a denture is to be made for a patient, the truer artist a man is the better selection of teeth he will make. After getting a gum to correspond with the complexion, then the blending of the colors, that they may appear natural, will show his colors. This is easy enough with single teeth, but with blocks the makers must shade them ; and they will if they are called for. We do not want cheap teeth. We ought to pay a better price for such as are true to nature, and I believe the profession will do so when they look at the matter in the proper light.

Excuse me for troubling you, but I feel very much interested in raising the tone of mechanical dentistry.

Yours Truly,

NICH. N. NOYES.

We are not sure that the writer intended the above for publication, but he did n't say not to publish it ; and it is so much in

the direct line of advancing and elevating prosthetic dentistry that we couldn't keep it out. It literally forced its way into the JOURNAL.—ED. JOURNAL.

Societies.

"Two are better than one."—SOLOMON.

NEBRASKA STATE DENTAL SOCIETY.

The sixth annual meeting of the Nebraska State Dental Society will meet at Omaha, Tuesday, September 12th, 1882, and continue in session two days.

W. F. ROSEMAN, R. S., Fremont, Neb.

FACULTY CHANGES.

Prof. Gorgas has resigned the chair long held by him in the Baltimore College of Dental Surgery, and himself and Dr. Harris, clinical professor in that school, have gone into the newly-founded dental department of the Maryland University. The changes in the faculty of the old Baltimore College thus made are Dr. Richard B. Winder, dean of the faculty; Dr. M. Whildden Foster, elected professor of dental pathology and therapeutics, and Dr. James E. Lindsay, professor of chemistry. Dr. Winder's address is 140 Park avenue, Baltimore, Md.

[The above was mislaid, and is late in its appearance.—ED. JOURNAL.]

NORTHERN OHIO DENTAL ASSOCIATION.

ANNUAL MEETING MAY 9TH, 1882.

[Report by Dr. A. J. Douds, Secretary—Concluded from last month.]

DR. LYDER: More mechanical work directed in the effort at restoration of crowns and preservation of the natural teeth was

required—fewer artificial teeth, and more and better methods to restore what nature had in part lost. The progress in this direction is commendable and highly gratifying.

DR. STEPHAN presented a case, showing a new method of using celluloid with plain teeth, which required considerable time and practice, and by which it could be applied to more cases than any other material. It consisted in hardening the surface so as to more perfectly retain its color.

DR. BROWN: There are serious objections to celluloid—fading of the color, flaking off and not holding the teeth well.

DR. JENNINGS: In the case presented, there is not a single feature, either in size or color, to indicate that it was for a person forty years old—no discoloration to indicate that it had ever been worn, by which to make the deception more perfect—baby's teeth in size, and the color of the celluloid gum resembling a boiled beet more than anything else. The study should be to copy nature, and with as great care as an artist would study his subject.

DR. POOLE has seen celluloid cases look well. But few section teeth can be made to give the proper expression. Nothing compares with nature, and in cases where the Richmond crowns can be used, and when the condition of the root will warrant it, an operation of unequaled merit can be produced.

DR. HARVEY: Many in the profession are undoubtedly compelled to use cheap teeth, not from choice, but in order to retain the patronage of a certain class, and where its loss would become a serious matter, and not sufficient time would be devoted to the case in such circumstances.

DR. THOMAS, being called, said he came to hear, and see, and learn. The subject is a broad one. The paper read would indicate its scope, and however brief and pointed remarks might be, time to discuss it fairly is too limited. Have observed a commendable advancement in this direction. One of the hardest blows prosthetic dentistry ever received was the introduction of section teeth. It was a great mistake. If there is anything to detest in artificial teeth, it is the section; and in not one case in a thousand can the proper expression be given.

Am one of those who believe the time has arrived when the two departments, operative and mechanical, should be separated. No one, without giving his special attention, can hope to succeed,

in either department, to the fullest extent. The time is coming when the Michigan Dental College will require the student to make choice of either operative or prosthetic dentistry, and each department will teach its specialty exclusively.

As to the best means of bringing about the best results in prosthetic dentistry, section teeth should be excluded in most cases. Prices should never be thought of when the true prosthetic idea is to be accomplished. Some means should be adopted to discourage people from fraternizing with the "Cheap Johns." When we have latitude in prices, we can give the patient the best results. In making a set, I often break up a set, selecting different shades, so as to imitate nature, showing a dead tooth here, a worn one there, making restoration and deception almost perfect. A lady patient said she was told I had made a set of teeth for a friend, and she knew it was a mistake, as she had her natural teeth yet. The most perfect harmony should exist between the teeth and every feature and expression of the face—nothing in the teeth to render them more conspicuous than any other feature.

DR. HOLBROOK: In the manufacture of artificial teeth there is a field for the display of skill which has few equals; and there is a growing demand for the services of him who can make and adjust an artistic set of teeth. A versatility of talent is required in prosthetic dentistry which is very rare.

The manner of treating the subject of prosthesis by our dental colleges is to be regretted, as but little attention is given to this department.

DR. CHANDLER: Am aware of the difficulty of producing artistic work in the use of block teeth. Single gum teeth are difficult to joint; otherwise can be adapted, with care and skill, to ordinary cases without grinding down the cutting edges, to give a natural appearance. With all the latitude in prices, the dentist has not all the latitude required in selection and arrangement. The wishes of the patient must to some extent be regarded. Block teeth can be, in many cases, well adapted, but, on account of the canines, are, in many cases, unsuited. As a rule, we educate our patients to our tastes, and must be held responsible if theirs do not usually conform to the requirements of nature.

DR. WILSON: Celluloid and rubber are failures; but rubber, with all its faults, is far preferable. Many patients want something cheap as well as durable, and rubber best fills the place.

He finds section teeth difficult to arrange so as to give the right articulation and expression. Plain teeth, with celluloid gums, are readily adapted to the requirements of the patient.

DR. HORTON: There is always something to be learned by an interchange of thought. This subject affords a wide field for discussion. Whatever supplies a loss comes under this head; but it more particularly applies to artificial dentures. He very greatly regretted the introduction of cheap bases. But few could manipulate gold; and the results with single gum teeth were such that nothing of modern date can compare either in expression, comfort or durability. There is as much difference between the comfort of a gold and a rubber plate as between an ordinary shoe and a rubber one—weakening of the circulation, from the heating effect of the rubber, producing a sense of discomfort in both cases. There is a great temptation to yield to the wishes of the patient, and it is always very difficult to imitate the natural teeth, in size and arrangement; and very many would be angry were we to attempt it.

DR. LYDER: What we are interested in knowing to-day is, what application of new methods the members are familiar with, and more particularly of artificial crowns. Would like to hear the opinions and experience of practical men.

DR. FRENCH: With regard to artificial crowns, have tried Litch's, Bonwill's, and others. Richmond crowns have no equal from the bicuspid back. One difficulty is to know just how much oxy-chloride to use, so as to avoid forcing a surplus under the margin of the gum, thereby causing irritation.

DR. THOMAS: It is a nice point, requiring practice, to get just enough, leaving no surplus to produce irritation by being forced under the gum. This can be avoided by leaving a hole in the crown for its escape.

DR. BUTLER: The matter of surplus is not as difficult as to avoid making the cap too long and driving it too far up. It should be so adapted as to pass just under the gum. If the other part of the process is well performed, not much difficulty will be experienced with the surplus. The Richmond crowns are the strongest, and seem best adapted to bicuspid and molars. The Bonwill crowns are liable to break—lacking strength. One mode of getting additional strength is to take an ordinary plate

tooth, soldering a plate to the pins and so bending the plate as to form a hollow cylinder lengthwise on the tooth, selecting tooth with cross pins, so that the pin or dowel, after being secured in the root will fit in the cylinder, then build up according to taste. Where there is a double root on a bicuspid, double the wire, securing the ends in the roots and the double end to the crown.

DR. AMBLER: By applying the rubber dam you can see just what you are doing, and there is less danger of causing irritation by surplus.

DR. THOMAS: The application of the rubber is not always possible, and other means have to be devised to obviate the danger alluded to, and keep dry.

DR. JENNINGS: Dr. Robinson, of Detroit, uses a pledget of cotton and a piece of spunk, cuts a hole in it and places it over the root. Has any one any experience with the Weston crown? He knew of one patient who had four Richmond crowns, which could not be endured. Mr. Weston himself removed them and funneled out the root, packing with amalgam, then the pin was driven into it and the crowns were secured, making a strong operation.

DR. HORTON: The old method of securing with wooden pins, when well done, was attended with great success. Have had great difficulty in procuring pure creosote for treatment of roots. Pure creosote is less escharotic and more antiseptic. Treat with pure creosote after removing every particle of dead matter, and no danger of subsequent trouble.

DR. JENNINGS: Experience the same difficulty in procuring pure creosote — undoubtedly the very best thing that can be used — far better than carbolic acid. It has been said that creosote will destroy the pulp, if capped with it in contact. Creosote will not affect the vitality of the nerve, but carbolic acid will destroy it. Tried the experiment of soaking six grains of oats, corn and barley each in creosote and in carbolic acid. Those treated with the latter failed to grow, while all but two treated with creosote germinated.

DR. LYDER: A good method of testing the purity of creosote is to mix with alcohol. If pure, it will not coagulate; but if carbolic acid be present, it will become jelly-like.

On motion, it was decided to hold no evening session.

SECOND DAY.

Association called to order by the President, Dr. Buffett, at 9 A. M.

On motion of Dr. Robinson, the subject up for discussion was passed for the time, and miscellaneous business taken up.

On motion it was decided to hold the next annual meeting at Bucyrus.

Reading miscellaneous essays being in order, Dr. J. F. Siddall, of Oberlin, read a paper entitled, "Tools via Ferrum."

On motion, the essayists were requested to hand the papers to the Secretary for publication.

The discussion of the subject, "Filling Teeth with Gold," was resumed.

DR. AMBLER inquired whether Dr. Blount's method was fully understood. It would be difficult to see how, with but one assistant, Dr. Blount's method, as described, could be carried out. It seems to me the method of manipulation is lame, as it is utterly impossible to weld cohesive to non-cohesive gold with ovoid points, as there will be, as has been described, that unavoidable tendency to draw away from the walls. Have seen fine operators use ovoid points, but sooner or later the gold will flake off. A successful operation can be made by cutting square cornered retaining points, annealing the non-cohesive gold, filling retaining points, covering the margin, then drive in the cohesive gold, using both kinds alternately, keeping the non-cohesive a little in advance, thus thoroughly lining the cavity throughout.

DR. L. BUFFETT: As to kind of gold, non-adhesive can be more perfectly adapted in cases difficult of access. Where direct pressure can be applied, cohesive is the best. Where there is only indirect pressure, and danger of slipping, non-cohesive is best. The probability of failure depends not so much on the kind of gold used, as on the skill of the operator. With fair retaining points, it would be best for all to use more non-cohesive gold.

DR. BLOUNT uses the ovoid points successfully, but he questioned whether his operations are practically as good as if serrated points were used.

The highest ideal of a gold filling is to use smooth points and non-cohesive gold, but few can attain sufficient skill to warrant its practice.

DR. SIDDALL: What gold do you use? and what number?

DR. BUFFETT: Use No. 4, except in finishing surface. It is preposterous to advocate any one theory of practice. But those who concentrate their efforts on one idea, bring out much that is useful, and indeed, also, much nonsense.

DR. FRENCH: To prevent the chopping up of the surface of the gold, use fine serrated points, and avoid too much malleting. Can't use large strips—cut the strips to suit the cavity. Doubling No. 4 gold so as to make it equivalent to No. 24 or 60, I find to be of great advantage. The power behind the throne is what makes the fine operation, regardless of the kind of gold used.

On motion, the subject of "Oral Surgery" was taken up.

DR. L. BUFFETT: A knowledge of anatomy is necessary for the successful practice of either medicine or surgery. It is the foundation upon which they are built; and it is to be presumed that every one engaged either in general practice, or in any special branch of medicine or surgery, possesses this knowledge. The subject of inflammation must be mastered, as far as can be; for this is what we have to deal with. It makes the demand for operations, except in those cases that are congenital; and after the operation, it must then be combated. The various changes in circulation, as the result of irritation, must be studied, always taking into consideration the systemic condition, or, perhaps it would be better to say, the different diatheses. Inflammation was formerly looked upon as the result of external causes; but it is now well known that it is from internal causes as well. In the treatment of inflammation, different modes will present themselves to the practitioner. He may use mechanical pressure, cautery, may break up the morbid process by antiseptics, local and general,—will guard against putrid infection—narcotics, to relieve pain—a judicious use of mercury will resist the formation of false membrane, and also cause their destruction, if formed. And, finally, surgical operations, to allow a discharge of inflammatory products, and also the removal of parts that are irreparable, or inconvenient, or that threaten life. Thus we see that operative surgery is only one of the methods of treating inflammation. I have thrown out these remarks hoping that some particular subject will be taken up, and would like to have that of necrosis considered, as it is one that dentists have to deal with quite frequently. It often follows the extraction of teeth, from blows, which may be very slight, but, owing to the condition of the

patient, may terminate quite unfavorably. Caries is closely allied to necrosis; in one patient we may have necrosis, in another caries; and the exciting cause may be similar, as far as we are able to discover.

DR. THOMAS: Would you anticipate, by removing the alveolus?

DR. BUFFETT: By this means you hasten the process of absorption and relieve the patient from suffering.

DR. THOMAS: This subject is far reaching, and comprehends the treatment of every organ contained in the oral cavity, including the filling of teeth with gold or other materials, which properly belong to oral surgery. All surgery is mechanical. The first thing to ask is how can we best get rid of inflammatory action? One thought that comes up is how to anticipate the inflammatory action which follows filling teeth with gold or other materials. Apparently perfect operations, where the circulation is unexceptionable, will often invite inflammatory action by getting the gold too near the nerve. I recall a case where five contour fillings in one mouth were followed by abscesses, as a result of a failure to anticipate the danger of proximity of the gold to induce inflammatory action. I have yet to see a case where, with proper care, it could not be guarded against. Others see our failures more clearly than we do ourselves. It becomes us to be very charitable, as we are apt to extol our successes, and make no mention of our failures. Numerous tests should be resorted to, before placing gold filling where there is any liability to induce inflammatory action. Cold or hot water tests are useful in determining the amount of vitality. Do not suppose that because a pulp is perfectly covered that the normal degree of vitality exists. A covering of some non-conductor will often obviate the danger. In the treatment of chronic abscesses, though the canal be large, make an opening through the process so as to render the treatment more thorough. The subject of transplanting and replanting comes properly under this head. Have had over five hundred cases of replanting in the last six years. But just how many cases will prove permanent, time will determine. At first I was greatly elated, but out of every ten or twelve cases, about five would have to be extracted, and three would drop out of themselves. As to whether there is an absorb-

ing element going on which will result in their ultimate loss is not easily determined. Time will solve the question. In replanting, I have universally observed one peculiar thing; about the third week, where the conditions are normal, the tooth apparently becomes a fixed substance, not having that elasticity which other teeth possess. The invariable expression is, "It feels like the solidest tooth in my mouth," with a tendency to bite on it. I am unable to account for this. Why is this so? Would like to have expression of opinions from others. Replanting should be only the last resort. Am doing it less than three years ago; and the practice is, for various reasons, being discarded. I have eight cases of transplanting; one case, in particular, I will mention, which was done for N. Colson, of Detroit. The patient's age was thirty-five years. Five years have elapsed since the operation was performed, and it is a most beautiful case. This case was remarkable. The teeth were firm with the exception of one of the superior canines—its root still being there. The healthy condition of the mouth made it a favorable case for an operation. A lady, three weeks previously, had called at the office, and in her mouth was a healthy canine which had been retained, which was then removed and thrown with the rubbish. It occurred to me if this tooth could be found, it would just suit the case. After a little research the tooth was found, and the canal was opened and the root filled with Hill's stopping. Upon extracting the root with a screw, the roots were compared, and found the tooth well adapted, and it went to its place perfectly. The shade was so perfect, and the resemblance so close, as to defy detection. As I have stated, after five years, it is doing well, causing no more inconvenience than the other teeth. I did not ligate, but pressed Hill's stopping between it and adjoining teeth. I might mention other cases in young persons, which were failures, which I was compelled to re-extract. A domestic applied for the extraction of a superior bicuspid. Tried transplanting in this case with a tooth which had been in my possession for twelve years. Have had this case under observation for over a year, with instructions that if it ever gave trouble, to report—have not heard from it since. What is the character of the union in these cases? I have taken off the periodontal membrane with the same results. The patient detects the immobility of the tooth which is characteristic of replanting.

AFTERNOON SESSION—SECOND DAY.

The President elect, Dr. French, on being conducted to the chair, delivered an eloquent and appropriate address, which elicited the undivided attention of the Association. The retiring President also delivered his valedictory, which was full of good points, and every way appropriate.

On account of the May Festival, which many of the members wished to attend, the subject, "Present Status of Dentistry," was passed over, and after the usual closing exercises, votes of thanks, etc., the Association adjourned for one year.

Books and Pamphlets.

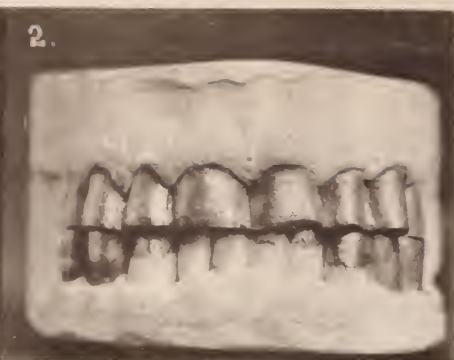
"Of making many books there is no end."

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION at the Twenty-first Annual Session, held at New York, July, 1881.

A NEAT volume, in paper, 212 pages, printing and paper according to The S. S. White Dental Manufacturing Company.

This volume, in the main, is more instructive than most of its predecessors. It goes deeply into the theoretical, and occasionally into the visionary, yet it does not neglect the practical.

The Publication Committee is entitled to the thanks of the profession, for the efficiency of the work, and if the book had appeared a little earlier, no room for criticism would have been left; but it is more important to be accurate than prompt. Those who know nothing of the difficulty of getting out such documents are the most likely to complain. May the succeeding meeting and committee do as well.



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Contributions.

“A word fitly spoken is like apples of gold”—SOLOMON.

METALLIC CROWNS.

BY DR. WM. N. MORRISON, OF ST. LOUIS, MO.

About fourteen years ago, I first performed the operation of adjusting gold crowns to crownless teeth, and gave it to the profession, and through them to the public, under the head of

A NEW OPERATION.

[Page 184, Missouri Dental Journal, 1869.]

Miss W—— came to me with a first left lower molar decayed to the extent that the entire lingual and a greater part of the labial surfaces below the gum were removed. The roots were filled properly with gold, and the crown had been filled several times; the last time the crown was built up in good style, but the two walls, being of such a shape that the filling could not be made self retaining, I took a natural tooth, corresponding as nearly as possible in size and shape to its fellow of the opposite

side, and imbedded its roots in plaster, to make a model from which to get a metallic die, over which to swage a gold cap.

I used a piece of thin gold plate, cutting it at the corners, giving but a slight lap for soldering after it was perfectly fitted to the die. I then fitted this cap accurately to the remaining portion of the tooth in the patient's mouth, allowing it to extend under the free margin of the gum, quite to the alveolus, which was about the thirty-second of an inch below the margin of decay.

After soldering a bar across the cap, from the lingual to the labial surfaces, it was finished and polished at the lathe. I then prepared the patient's mouth as usual for filling; made a thin paste of oxychloride of zinc; filled the cap, and pressed it to its place; the superfluous cement was crowded out of the cap and removed at the margin of the gum.

I had the pleasure of seeing that tooth to-day, nearly four months after the operation, and had the gratification of seeing and hearing it pronounced a perfect success. N.

Since that time but very few have availed themselves of the advantages of this, *the grandest invention in operative dentistry during the last quarter of a century.*

Take, for example, any case where extensive building up is required. A large amount of watchful care, physical outlay and skill on the part of the operator (acquired only by the few) in conjunction with the most approved, rapid and painless methods at our command for welding the improved forms of gold, is necessary to produce the most characteristic and finished result; and this only after a five or six hours' seige over a patient, who has but a small stock of endurance to start with, and in consequence, has grown more restless and irritable each hour: the question is forced upon us, "Did it pay?" Then, when tested by the tooth of time, the thermal changes acting upon the large metallic mass, the walls show checks, stains and cracks, and finally fall away, leaving, unsupported, the large over-malleted nugget, then we are forced to say with the patient, who refuses to submit to the inquisition again, "It did not pay."

"Too far gone to be filled again, have it out." And as the dentist (O. S.) dances around showing the large, well-formed roots in the forceps, the triumph of his skill, he lays the flattering unction to his soul that "dead men tell no tales."

We will all agree that large masses of metal are not the correct thing to be worn in teeth with live pulps at any time, though we are continually trying the experiment to see under how much gold a pulp will drag out a miserable existence. The crowning method comes grandly to our relief in all such cases. The pulps can be saved alive and the tooth made more comfortable and durable than by any other method yet known.

I have been operating upon an entirely different basis for ten years or more. Teeth, or roots, so loose that they can be removed with the thumb and finger, I do extract, when I feel they are beyond the hope of successful treatment, but no others.

I hope the day is not far distant when the forceps, extracting screws, gas, and every facilitating medium by which teeth and sound roots are extracted, will be forever laid aside, labelled machines of torture of the past, to be used like the turnkey, only in rare cases and at long intervals, and when there will be enacted laws which will make it punishable by fine and imprisonment for the extraction of teeth or roots that are firm in the jaws, or are susceptible of being made so. A patient suffering from pressure upon an exposed pulp in a tooth is not a correct judge of what should be done with it, and a dentist who accedes to the demands to extract, should be held accountable before the law for mayhem—even more than for the mutilation of any other part of the anatomy, for upon the proper mastication of food all the other parts of the anatomy depend.

I have had cases, pronounced by other operators hopeless, useless and threatening harm, where I have adjusted crowns which have been worn with great profit to the patient for years; several where unsuccessful attempts at extraction where the roots had been fractured uncomfortably high up under the gum and of inconvenient shape; where the restorations have been pronounced marvelous, and they really were satisfactory beyond anything that was expected of them.

Another class of patients for whom this style of operating is particularly desirable, is where chemical abrasion is accompanied by extreme sensitiveness of the dentine, and a nervous dread of instruments; and chemico-mechanical abrasion where it is extensive, and formidable restorations required—illustrated in case No. 1. Mr. O. W., gentleman about fifty-three years of age, retired merchant, nervous temperament, who in his early years

was so occupied in business that he never took any care of his teeth, but had them extracted as soon as they troubled him, resulting in the loss of the molar teeth in lower, and molar and both second bicuspid in the superior jaw. The crowns of the remaining teeth were so extensively abraded that the lower incisors were occluding into the upper gum, and the upper bicuspid were occluding into the lower gum, pulps alive in all but three. The cast represented, was trimmed at cervical margin. As these teeth had been doing double duty for years, it was necessary to reconstruct them of such material, shape and proportions as would best fit them for mastication, as well as incisive and enunciative functions.

The six superior stumps were fitted with truncated cone shells of twenty-two carat gold, thickness twenty-eight gauge plate, the small ends fitted tightly to the roots, and the remaining portion planished over a round, pointed stake into proper anatomical shapes and adjusted to each other, and trimmed to the margin of the lips, using the surplus material on the palatine side to increase the masticating face as much as possible. The coronal faces were closed with heavy platinum gold, slightly sunken below the edge, and well thickened with solder on the inside. The bicuspid were made without taper, but slightly closed in at cervical margin, to take a firm grasp upon the roots just at the free margin of the gum. Upon the coronal faces of heavy gold were soldered crescent-shaped clippings for cusps to facilitate mastication. The lower bicuspid were made similar to upper; the lower canines were capped with truncated cones with their bases fitted to the tooth about eighth of an inch from the gum. They were put on in pairs at each sitting with phosphate cement, a small vent-hole being required in several. In the three canals where the pulps were dead, heavy retaining screws were used, the other stumps were not cut or roughened but merely cleansed with chloroform and well dried. The uneven edges of the lower incisors were leveled with platinum gold foil. No. 2 illustrates the extent of contraction. From the patient's experience with them, he said that he and the dentist might live to make a restoration equal to *one* of the other crowns, but they never would live through a *second*.

No. 3, Mr. J. W——, gentleman about forty years of age, prominent business man, identified with large capitalized interests,

who has for years chewed cigars which are made of the outside sandy leaves of the plant, instead of prepared or medicated tobacco, called chewing tobacco. Ten years ago the upper teeth were worn through the enamel, and so much cupped out that I was obliged to make quite extensive restorations with retaining screws and cohesive gold, all of which remain in good condition to-day, though considerably worn.

The abrasion was only on the right side; by no motion of the jaw could he get the teeth within an eighth of an inch of each other; the lower ones were cupped out until the enamel margins stood sharp—dentine very sensitive; he had deferred consulting me for want of time to devote to it, as he remembered the sittings for former work. He asked me to devise some means of relief for the stretching of his mouth and the long sittings, all of which was accomplished by using thin ribbons of platinum for the bands, so as not to increase the size of the crowns; the coronal faces were made of heavy platinum gold, shod with four half crescents, as described above. With thin phosphate cement, the force of the closing of the jaw was all that was required to make the work complete. I left the empty crowns in position until the cemented ones were secured, and then cemented them. No. 4, imperfectly illustrates the result; No. 5, shows the working impression and articulation I use for single crowns; No. 7, root prepared, showing retaining screws and crown.

No. 8 are iron dies made from natural teeth, which are used in swaging the gold or platinum faces upon lead mattresses in forming the coronal end of the crown.

After the barrel of the crown of 24 carat gold has been fitted to the root and planished into correct anatomical shape, shorter than the finished crown by a sixteenth or eighth of an inch, the swaged coronal end of thin platinum (30 gauge plate) is slightly stuck to it with solder, 22 carat gold in two or three places, when it is placed upon the plaster model, or in the mouth, and correctly articulated, the thin metal readily yielding to occluding cusps. The lap neatly planished and soldered, thickening the occluding face upon the inside to a sixteenth of an inch or more as required, with little clippings of platinum and plate gold (20 carat) for solder. Where platinum is used for the whole shell of the crown, but little care is required in soldering and filling with 24 carat gold.

Any face of these dies may also be used in swaging metallic sections to protect cement fillings, leaving uncovered those portions of enamel in a healthy condition. The sections should overlap the margins about the thirty-second of an inch, be burnished carefully to them and should have anchorages soldered to its inner surface to secure it to the cement.

In shape, distribution of material making them thin at the cervical margins, and thick at the cusps, I endeavor to reproduce in metal a copy of nature's enamel.—*Ill. Transactions.*

THE AMALGAM QUESTION, FURTHER.

BY WM. A. PEASE, M. D., DAYTON, OHIO.

DR. GEO. WATT: We two have stood together, laboring almost side by side, for more than a generation, and have grown old in the practice of dentistry. Both of us started out in life much the same; upon a basis of a medical education. You, with the advantage of having completed it, while I, after two years' study, and a little practice under my preceptor, finding the path of a general medical practitioner would be something like the Jordan road to travel for a man on two crutches, switched off to the side-track of dentistry. I brought to my profession the habit of study—of thinking, and the faculty of using my eyes. And I have ever since continued to read medical literature with a first love, in connection with that of dentistry. My brain had been so modified by study, like an inebriate's by drink, that it became a necessity. In addition to this, my incapacity for easy locomotion made it necessary to relieve the tedium of leisure with either study or investigation, which was not confined to professional routine, but embraced general scientific and polite literature, so far as opportunity would admit. In this you will see I departed from that old Latin maxim you quoted from Pliny, in connection with your other profuse Latin quotations: *Ne sutor ultra crepidam*. Here I must dissent from you, having spent six or seven years reading Latin and Greek. I wish every practitioner could have done the same, as I am sure the effect of it would be visible in our literature, and the position we could occupy among the other professions. It is the gymnastic exer-

cise that no other training has been found to equal; and statistics show that of all of the most distinguished men of Europe or America, by far the greater part were the best Grecians of their classes. Here I would advise you to read the *Ecloga Quarta* of Virgil, in the original, (I have recently done it) and you will find that the old heathen wrote and thought wonderfully like Isaiah and the old prophets. A Bible student, as I know you are, you can hardly tell the difference—it is good reading. So much for Latin, and the inspirations your quotations gave.

You are right in saying it is “a singular coincidence” that two articles, both opposing the use of amalgam, should appear in your JOURNAL in the same number. One of them can hardly be called an article; as it is simply a malicious tirade against that old thinker and investigator—Dr. Flagg. With the history of that writer I am unacquainted. The internal evidence of the article indicates a young and inexperienced man, so tickled with the ability to pound into a cavity a little gold, and make it shine, that he cannot contain himself. Gush is an evidence of inexperience, as well as the seeming inability to present one fact showing that gold is better than amalgam, or one experiment showing wherein that consists.

As the article contains nothing but assertion, it is unworthy of serious consideration, except for the reason that confident assertion sometimes exerts an influence on young, inexperienced and confiding men. The whole tenor is unbecoming, and without the pale of that courtesy that should distinguish professional men. Dr. Flagg is abundantly able to take care of himself; but I cannot refrain from expressing my admiration of a veteran, whose long study, much thought, and many experiments have given him convictions that he has the courage to assert.

The article, “By a Physician,” is of the same general tenor. He goes over the old beaten track about metallic poisoning, without adding a single new fact, or a single new suggestion, remedial or otherwise. This seems to be a prelude—a kind of appetizer to fix the attention and excite the sensibilities for the feast to come. But what a feast! It is as mild as his mildest aperient, calculated for delicate stomachs. He is evidently in doubt about his premises. He wants facts, and dislikes to attack by indirection. What a god-send it would have been to him, if our Nebraska friend had written a month before.

He then could have used that authority, and preserved his *sauviter in modo* and added that *fortiter in re*. To be sure, he gives the quantity of bichloride of mercury necessary to give the belly-ache, and then conjures up a number of amalgam fillings supposed to contain mercurius, grs. xl — soluble chlorides in the mouth q. s., and leaves us to infer what an intestinal commotion it might occasion. Even here the force of habit asserts itself; for he reduces it to its equivalent in blue pill, undoubtedly by his favorite cholagogue. The question here arises, how much of nervous erythism and of other obscure symptoms do the vestiges of former prescriptions leave in the system?

Seriously, Dr. Watt, you and I have investigated the amalgam question long and patiently, seeking for truth, with equally honest intentions; but have arrived at different conclusions. You, with your chemicals on your bench, have satisfied yourself of the potencies in amalgam, and your conclusions are equally as satisfactory to me from your standpoint; but I deny that those conditions exist in the mouth. You have used little, probably no amalgam. I have used it and watched it for forty years, with but few spasmodic exceptions, in deference to auriphobists,* who said that a man who could use gold should use nothing else. During that time I have seen the growth of amalgam fillings from simple silver to the miscegenation of to-day. Some of them have been all that could be desired; some of them discreditable and a cheat; some of them have shrunk in setting, some have not; some contained an excess of quicksilver, some not enough; some of the cavities were well prepared, some were not; some fillings were damaged by being used too soon after insertion; some bore the impress of a prehensile tongue licking them to find if the dentist had filled them or not. From these, and many other conditions, I have tried to discriminate and find the real value of amalgam, as a filling in competent hands, in saving saveable teeth.

When the amalgam contained an excess of quicksilver, the surface would soon roughen, as it would when it contained not enough; when, before finishing, it was covered with salivary mucus, it would also roughen, in some mouths; but otherwise, I have never seen a filling that *wasted*, that is, *eroded by an acid*. I have seen good fillings doing excellent service, which, by reason

* Would not hydrargyriphobists be a more appropriate term?—EDITOR.

of bad manipulation, an auriphobist would have held up both his hands in horror, and tried to disgust the patient with them; and I have seen periosteal complications under them, that he would try to father upon them, when they were as innocent of them as identical complications under gold. During this time I have extracted many teeth containing amalgam, not only of my insertion, but of others, and having a magnifying glass, have examined them with care, and during a part of the time sections of the filling and of the tooth were submitted to a microscope of high power. I have found that amalgam sustained these severe tests fully as well as gold, inserted by representative writers and fillers. There have been no more ragged, cavernous, ravine-like fissures between filling and margin of tooth in the amalgam than the gold; and I think the preponderance is greatly in favor of amalgam. With regard to electricity, but little is to be said. During many years there was a battery on my bench for plating silver plates with gold, and I, as an especial favor, plated some watches and other articles for a friend, and became acquainted with all the whims of a battery, and the difficulties of keeping it in order—was familiar with electrolysis: a practical electrician to that extent; and I have never seen any indications of galvanic action in the mouth, though often searched for, between an approximating amalgam and gold filling; or between either and a gold, silver, platinum or aluminum plate. A moment's reflection would satisfy any practical man that the conditions of the fillings or plate in the mouth, immediately wet with saliva and coated with oleaginous matter, are unsuited for electrical or galvanic development.

If, as I have shown, there is no *waste* of an amalgam filling, there can be no *impairment of nerve function* or *contamination of glands*, and every form of the neurosis must be due to some other cause. Familiar as I am with many of its protean forms, I have never seen it in persons who had amalgam fillings more than in those who had gold; and no more in either of them than in those who had neither.

Now is it not an indisputable fact that mercury in some form is exhibited by most physicians for biliary disturbance? and is it not a favorite form with many, the comp. colycinth and blue mass pills, one pill a day, for three days, then three to carry them off? What becomes of that mercury that has been tarry-

ing in the system for three days? Has it not been absorbed? Besides, many persons keep mercurial preparations in the house as domestic remedies, or get, on slight provocation, anti-bilious pills from the drug store. Is not one, and quite a common form, of rheumatic cachexia due to mercury, and the exhibition of alteratives, especially potass. iodide, intended, by stimulating glands and destroying tissue, to liberate the imprisoned mercury? Does not every dentist, of much practice, see frequently, if capable of using his eyes, or of diagnosis, the recent taint of mercury in the mouth and on the gum? Ought not that wasting of the socket, called Rigg's disease, to be called *odium-medicorum*? Talk about the mercurial contamination of the system from amalgam! Why there are a million cases from doctor's drugs to where there is a well grounded suspicion of one from it. Were it not for imprisoned mercury, the Hot Springs would be little visited; for they are not indicated in primaries, although it is claimed that more mercury can be gulped down and rubbed into the system there, without absolute destruction, than away. Now I am peculiarly sensitive to mercury, having lost, in youth, a leg, and almost my life, in consequence of it. Knowing my susceptibilities, I have not hesitated, during forty years, to rub quicksilver vigorously in the palm of my hand, often many times a day, to form amalgam, without injury or the dread of an injury; when, without the accompanying silver, it would have killed me long ago. Why? Because the affinity between them is so great they will not part company; and it requires a heat up to the fusing point to expel all of the quicksilver. Now this quicksilver, how often soever it may be distilled, always contains an oxide after a little exposure, and yet, thousands of dentists have been using it for years without injury, formerly without distillation. Besides, our physician should recollect that dentists see his patients who are taking muriate of iron, or acid drinks, so strong as to injure or destroy the teeth, and yet the amalgam fillings are not corroded, do not disappear unless his acids destroy the teeth and liberate them. "Soluble chlorides" in the mouth! Yes, Doctor, and without medical men how often would they be there? The juices of the mouth are generally alkaline or neutral, and the weak acids that are occasionally found there, are so mixed with saliva and fat globules, they cannot affect a metal and do not. Metal is less easily acted on

than the teeth, and an acid that would act on a filling would act on the whole superficial surface of the teeth, which is never done. Teeth decay in spots, and the acid or alkali that causes it is generated there, and not diffused through the mouth. Where does an acid come from? Regurgitation from the stomach is seldom, and the fluid from the ducts does not destroy where it is poured out, and it is the strongest, otherwise the first superior molars and the inferior incisors would be attacked at the margin of the gums—the point of greatest exposure, and disappear like the morning dew—which is precisely what is not done. Again, sulphur in some form, is daily taken into the mouth, and its affinity for silver is so great, it immediately blackens the surface of the amalgam; and sulphureted hydrogen is quite too common in the breath, showing alkalinity and the want of an acid to correct that condition. The black sulphur coating on the surface of amalgam, more or less coated with oleaginous matter, is inimical to the action of an acid on it, to corrode it, or waste it, and without *waste* there can be no galvanic action.

Now I know that an expert chemist, with delicate chemical tests, on clean surfaces, in his laboratory, under favorable circumstances, can, by bringing affinities together, show feeble chemical action from ingredients, gaseous or otherwise, that are, or may be in the mouth. But having tested the juices of the mouth for years, I deny emphatically and *in toto*, that decay is caused by diffused acid; and I affirm, equally as emphatically, that the destructive acid is generated *de novum in loci*, on the spot. From a long series of tests and observations, extending over a period longer than a generation, I know whereof I write. Amalgam fillings do not waste, disintegrate. Silver has stronger affinity for quicksilver than anything that enters the mouth. It clutches and holds it fast in its embrace—will not part from it under any conditions that can obtain in the mouth. If, by reason of slovenly operating, there is an excess of quicksilver, the pressure on the mass, while inserting it, will bring it to the surface, and the first friction would carry it to the stomach; but it is metallic and not an oxide, and unless converted into an oxide in the stomach, is harmless, although most of the mercury in a blue pill is metallic. So, obscure symptoms of functional nervous derangement do not come from amalgam. Nearly forty years ago a woman in Massachusetts swallowed a large mass of amal-

gam; it set and did not escape. It caused much speculation by the doctors, in, I think, a weekly journal published in Boston. The woman was uninjured. Now if quicksilver in excess escapes from a slovenly worked amalgam, who is to blame for it? Not the amalgam surely, but the dental college that refuses to teach the proper use of it, or the State Board of Examiners, who annually let loose a half hatched, callow brood, to prey upon the State. So long as the law is unmodified it is their duty to examine; and when it first went into execution, to be lenient to the dentists then to be examined, but it is now their duty to make Jordan such a hard road to travel, students will prefer to go to college. Then, if thoroughly taught in the use of amalgam, there will be no obscure symptoms of mercurial erythism that doctors or druggists are not responsible for. And no suspicions of them, for suspicion, so far as amalgam is concerned, is all that there really is.

Since amalgam fillings do not waste, either from chemical erosion or friction; and since the affinity of the metal is stronger for the quicksilver than anything that can enter the mouth, the whole mass being homogeneous, in the sense of cohering unity, there can be, and there is not, any contamination of the gum resting against it, or of the system; neither can there be galvanic action. A non-shrinkable amalgam filling is a nearer approach to ideal perfection than anything yet devised.

If our physician has an inquiring mind and the abundant leisure the writing of that article seems to imply, he cannot spend it more profitably than in investigating those obscure forms of neurosis arising from the grating, grinding, whirring noise of the engine, and the sensation of the instrument in contact with sensitive dentine. The more unendurable and damaging as the teeth are good conductors of sound, and that capacity is now utilized by the deaf. If, in connection with this, he takes into consideration the incessant clicking of the electrical mallet, or the measured and monotonous thud of the mallet in the hand, and sees the patient rhythmically anticipate every blow by a shrinking of dread, the hands firmly clenched or grasping the arms of the chair, the feet firmly braced, the unnatural tension of the muscles, often lasting hours, and sometimes for days, until the patient leaves the chair verging on collapse, he will have food for reflection. If he sees tears streaming from the eyes, thus indicating

two sets of emotions going on at the same time, and has watched the facial expressions, he may come to the conclusion that his diagnosis was at fault, and that some of the authorities he has read have been misleading—that the large, bright, beautiful, artistic in construction, costly and almost worthless gold fillings have cost the patient more than time and money; and that they afford an unbounding field for investigation for unusual forms of obscure nervous symptoms, and that the swarthy-faced amalgam is the victim of an unbecoming prejudice. Judging from his article, he has much to learn to keep abreast with his profession. Indeed, he is not singular in that respect. Being ambitious, there is hope for him, if he confines himself to legitimate practice and investigation. A physician never knew but little of diseases of the the mouth, and to-day there is such a weight of ignorance resting upon him as to be oppressive. “*Ne sutor ultra crepidam.*”

Dayton, O., July 21, 1882.

A NEW PHASE OF THE AMALGAM QUESTION.

BY MELVILLE C. KEITH, M. D.

THERE is a saying to the effect that if one discovers anything of benefit to the race and will not disclose it he is a robber. The writer does not assume to be a discoverer, but many facts coming perforce of necessity under his observation from his profession, have made so profound an impression upon him that it seems justifiable to disseminate the knowledge of these facts for the benefit of humanity. With this preface the writer submits the following:

The *fillings commonly used by dentists* for the purpose of *plugging large cavities*, and advocated by a *certain class of dentists* to fill “*soft, frail teeth*,” and the *fillings known under the head of “Amalgam,” silver fillings*, and all fillings composed of *cadmium, zinc, mercury or lead*, are *in themselves directly injurious* to the *teeth*, to the *nerves of the teeth indirectly*, and *secondarily affecting injuriously the optic and aural nerves, causing dimness of vision, deafness, and softening of the base of the brain.*

No one can appreciate the storm of indignant denial which

is now being made by the advocates of this "amalgam" or plastic filling, and those interested in the sale of some cement, and also from those who will reiterate the often repeated assertion that "tons of amalgam are being carried around in people's heads," and no one makes complaint. In order to ascertain whether there is any complaint from "amalgam" fillings, it is only necessary to examine the very large and increasing number of those who have neuralgia, weak eyes, and are *partially deaf* from the effect of amalgam filling. These cases are referred to the oculists, the aurists, or the physicians, many of whom are too utterly careless of the benefits derived from proper dental hygiene. To-day many hundreds of agonizing neuralgias, weak eyes, and ringing in the ears, would be radically cured by an application to a scientific dentist, rather than to the physician who almost universally resorts to opium in one form or another to lull the pain instead of *removing the cause*.

The injurious effect of mercury and zinc, as fillings of teeth, arises from the fact that these metals, *with the saliva*, form a *galvanic current* in the mouth, immediately affecting the nerves of the pulp chamber, thence the dental and maxillary nerves, and, by immediate relation, affecting the trifacial (fifth pair), and thence *all* the cranial nerves.

Now, in relation to two metals, *with the acid of the saliva* forming a current or a galvanic battery. The first query of the unscientific mind would be, "How can this prove to be a galvanic current and yet no shock be felt?" The correct reply would be, "because, 1st, The metals are in contact; 2nd, Because these metals, with an acid, *always* form a current, and it would not make any difference whether the conditions were on the top-most peak of the Rocky Mountains or in Africa, or in a man's mouth or teeth. *Like causes produce like results*, and the conditions of the current being present, the current is certainly present.

In explanation of the question why no shock is felt, the reply is because both currents are connected and present. For instance: Take the galvano-faradio No. 3, or No. 4 electro-magnetic battery, and with a freshly charged cell have all the power (electricity) possible. If, now, both poles or sponges are placed in one hand, and the sponges *touch one another*, no current can be felt. But take each sponge in different hands and an ordinary person cannot bear the shock. So with the amalgam fillings of the

teeth; both currents are together and cannot be appreciated at the point of contact. If, however, two different dentists have placed two different kinds of amalgams or metals, the current becomes appreciable to certain sensitive people to such an extent that one filling has to come out.

Many a milliner or dressmaker, in the habit of placing pins or needles in their mouths, can testify to the sudden dart of exquisite pain arising from the contact of brass or steel with the mercurial and zinc filling. Nor is it necessary to have the current felt or broken to be effective.

Reynolds says (page 20, Clinical Uses of Electricity): "The chemical action of faradization is almost *nil*; the direct effect on temperature is almost *nil*; it causes no burning feeling, like that which is communicated by the galvanic current, but under ordinary circumstances it produces marked contraction of the muscles."

Althaus (Medical Electricity, page 130, 3d edition): "The only form of electricity which, if applied in moderate intensity, has a distinct physiological action on the brain of the living man, is the continuous current. Static electricity, electro-magnetism, and magneto-electricity only affect that organ if applied so powerfully as to interfere with health and perhaps life; but a gentle, continuous current, directed to the face, scalp or neck, and which causes no, or scarcely any, sensation of pain, is readily transmitted from those parts to the cerebral substance."

From these quotations it appears that faradization, induced current, and a continuous current can be present and effective and yet quite imperceptible. Furthermore, after the teeth have been filled with amalgam, the teeth so filled turn black from the *chemical action* of the zinc and mercury, which is, in itself, electricity. "Wherever you have chemical decomposition in progress, there is also some electrical change going on." Reynolds, page 15.

This question can not be answered by personal invectives against scientists. It is a question which is of paramount importance to the dental profession, and one that must be answered in the affirmative each time the question is asked, "Do amalgam fillings form with the acid of the saliva a battery or a galvanic current in the mouth?" Further examination corroborates this assertion. The usual formula for the ordinary battery is zinc, platinum, and dilute sulphuric acid. The Storhrer battery (or

what is better known in America, the Galvano-Faradio Manufacturing Company's batteries), is a current induced from carbon and zinc in a solution of sulphuric acid and bi-chromate of potash. In these batteries the zinc is soon decomposed. If the amalgam fillings for the teeth were composed of pure zinc, and the saliva dilute sulphuric acid we could demonstrate the most powerful current by showing the rapid decomposition of the zinc. As a matter of fact, the zinc is in the tooth, the acid (in the saliva) is present, and a *current must exist*. The reason why the zinc is not decomposed is because the zinc is most *thoroughly amalgamated* with quicksilver by the dentist before placing it in the victim's tooth. For a corresponding action, let one observe the Jerome Kidder batteries, say a No. 5. The formula for the current generated by this most elegant galvanic battery is carbon, platinum, one part sulphuric acid, twelve parts water. The directions are: "Put a tablespoonful of mercury in the bottom of the jar." Though the most powerful current can be generated by this battery, the zincs, while they touch the mercury, look fresh and bright. If, however, the mercury is not put in, the zinc turns a blackish brown dirty color; *and the same condition is seen in many fillings of teeth*, varying according to the amount of mercury placed with the zinc at the time of filling the teeth.

If we follow the eminent American authorities, Messrs. Beard and Rockwell, this current would come under the head of "Dynamical Electricity," arising from the dissolution of metals, for "it is found that chemical electricity is most conveniently generated by the reaction that takes place between two metals and some acid solution, and as a matter of economy, zinc is the metal at the expense of which the electrical force is evolved, the other metals acting merely as conductors. (See Medical Electricity, page 19.)

It is, however, the province of physicists and electricians to demonstrate whether the current, from a zinc and mercury filling, is "induced," "faradic," or "dynamical," or whether the action is "voltaic," "electro-magnetic," or "galvanic," it being our place to decide that any and all excessively continuous currents are dynamically injurious to all the cranial system of nerves. How the current from an amalgam filling is generated and carried to different points, how it causes headache, dimness of sight, depression of mental power, is safely left to be discussed by the future.

We have said enough to show that every amalgam filling, *per se*, with an acid, and the acids certainly are not wanting in these days of acetic acid, and sulphuric acid vinegars, or in the sugars from glucose and sulphuric acids so commonly retailed, or indeed from all Americanized syrups manufactured from corn or sorghum. The most eminent electricians of America, Beard and Rockwell (*op. cit.*, page 26) say: "Just how the current is formed we do not fully know; we know that when the different metals touch each other, the positive electricity will go to one metal and the negative to another." Writing of the Leyden jar, these authors say: "*When the metals are made to touch each other, or are connected with wires, they are relieved of their charge and again become charged, then again relieve themselves, and so on indefinitely. There is no equilibrium established, but a constant effort to establish it which never succeeds. This constant effort to establish an equilibrium keeps up the current.*"

Any one conversant with the ordinary facts of chemistry can decide whether with zinc, mercury, and an acid saliva, there is or is not a current in the tooth or mouth affecting the entire buccal cavity. To the unfortunate victims who have amalgam fillings, this current of electricity is a daily demonstrated fact. The *taste* the first few days after the tooth was filled, was from a *current of electricity*. The *inflammatory condition of the gum* was from a current of electricity *generated* by the action of the zinc, mercury, and an acid saliva. It will not answer the purpose to declare that "frail soft teeth" can be saved with amalgam. If that amalgam constitutes an electrical current, which is destructive to the eyes, the ears, and to the base of the brain, from a current being transmitted to the origin of the fifth pair, and if, as has been shown, the amalgam fillings constitute a force sufficiently powerful to destroy the intellectual attributes of the man or woman who is unfortunate enough to be victimized by an ignorant or unthinking dentist, then it becomes a matter for the people themselves to investigate, and enact such laws as may prevent the ignorant ones from having this nerve destroying compound placed in their mouths, even though that destructive process is under the guise of saving "frail soft teeth," or more ostensibly to benefit the sellers of amalgam, and the authors of plastic filling. Those who have not investigated this subject, we will refer to the work already cited, "Medical and Surgical Elec-

tricity." As to the definition of electricity, which is there defined, to be "a *disturbance* propagated in the molecules of a body and the ether pervading that body," (page 27) and this "disturbance" from zinc and mercury, with an acid saliva, is a disturbance which intelligent people will no longer submit to. We will now examine the *effect* of this "disturbance" on the maxillary nerves.

[To be continued.]

THOUGHT AND ACTION.

BY J. A. ROBINSON, D. D. S.

THAT thought always precedes action there can be no doubt, although the world has insisted that there are thoughtless acts and deeds, and they seem to meet us on every hand.

This insignificant or unconscious fact does not destroy the proposition or remove the consequences, or disturb the effect that must always follow the cause. Thought is a manifestation of nature. Nature touches us on every side. We cannot go outside of nature with our thought. "If I ascend into heaven (says the psalmist) thou art there; or if I make my bed in the grave, thou art there also; and thy right hand shall guide me." He must have meant this great spirit of thought. All the ideal and all the symbolical, in the most poetic minds, are but glimpses caught of transient nature that have escaped the grosser observation of the inattentive and the thoughtless. The thing we call *grace* is only a perfect manifestation of the divine order and harmony of the universe. The translucent and the refracted rays of light that come to us in the hurry and bustle of business are obscured by our daily wants, that always have to be seen through a dollar. It was the spiritual insight, the thought of Mr. Emerson that raised him above the cynicism of Carlisle and Ruskin. It was because he saw the clear white light and truth of thought on every side. Carlisle and Ruskin placed too high a value on what they and the world had to forego, while Emerson found pleasure in pleasing and giving the thoughts and action of truth regardless of himself. It was this spirit of thought and action that sent Columbus to the new world, and inspired the signers of the Declaration of Independence. In our forefathers the thought of

freedom was intensified and consecrated into their lives, until it sprung into action. If it had not been thus we should have been colonies of England to-day.

Every slave that has groaned under the lash of the tyrant has felt this thought of liberty, as he beheld the birds flying and heard their songs of freedom; or, as he saw the clouds, as they went sailing in freedom above his head, on the wings of the wind; but he has been listless and lazy. Whenever this thought is intensified and leagued with the opportunity, there is an end of servitude, and freedom begins in action. The great hindrance to progress lies in the fact that we look passively at our short-comings, and give consent to insipid and shabby achievements.

Professional life is made a means of subsistence, rather than a manifestation of love for the profession. Day after day the dentist consents to use the trowel and amalgam to get a living, regardless of the highest good to his patients. Day after day he works with dull instruments, to the great annoyance of his patrons, because he is too lazy to point them and put them in order. The common mechanic cannot retain his position if he tries to perform work with dull tools.

We have visited fifty dentists at their offices during the past few months, and not more than one in ten have instruments fit to do good work. One would think the oil stones were mislaid or lost. Nine-tenths of the serrated instruments are so blunt that the principle is lost. The principle of the serrate is, that more of the surface of the metal comes in contact and the blow creates heat and pressure; and heat and pressure are necessary to weld metals. Thought and action combined produce enthusiasm, and out of these comes a new product, which is love, or heat, or life, for they are the same thing according to their states of activity. They are the spiritual combination, and are well illustrated by the chemical action of acid and alkali; they produce heat by union, so that a new material is formed by the affinity of the elements. The greatest obstacles are the love of ease and selfishness.

The human mind is vagrant, and vagabond thoughts, like individuals, are disorderly. Our thoughts are often influenced by our surroundings, and circumscribed by our necessities; but there is no one who could not do a little better than he does.

Flagg's errors of amalgam demoralized a whole State.

Douglass's theory of squatter sovereignty almost did the same thing to the nation in 1858. The imperial thought and action of Napoleon brought a hundred of the best heads to the block every morning in Paris. It was better than the inactive and lazy thought, in the days of Louis XIV., that preceded the French Revolution, but it did not cure the evil. It has taken two or three horrid massacres since then to establish the republicanism of France to-day.

Flagg's errors of amalgam have established the possibilities of saving the teeth, as against tooth extraction (as imperialism is useful as the stepping-stone out of barbarism), and may lead the profession up to higher endeavor and better things. The average amalgam worker is like a poor devil plodding along through life and coveting nothing higher than his daily bread, indifferent to everything but ease, and if he chance to have a good thought he has no action for sustainment in his higher resolve. It is comforting to note that Flagg has begun to waver about the "exclusive use of amalgams;" the over-powering public opinion could not be crushed out, and his stupendous sense of self is tottering and is about to fall before what he once considered the insignificant opinions of his brothers. He is in the same condition of Napoleon before the battle of Waterloo, when he said to his generals, "To-day we will teach this little Englishman a lesson."

Every person has, at times, felt thoughts creeping over him that seem to bind him to invisible acts of justice and mercy. They are the inward voices of the angels speaking to the good part of us. And when these voices are heeded, the consecrated thought moves society to higher and greater degrees of excellence. This higher thought was dumb before the passions of the American people after the murder of President Garfield, or the crazy Guiteau would not have been legally murdered. It was drowned amid the roar of the British cannon in the destruction and bombardment of Alexandria, in Egypt, the past week. This bribery of power murders justice, in the name of prosperity of nations, to bring in money to support the nobility in idleness and luxury. It is the shell of selfishness that men creep into to hide their shame, as Adam and Eve did in the garden. True thoughts are not disheartened by sins nor discouraged by failures. They rely more on the great pulse of the masses than upon the narrowness of individuals. Truth cuts to the bottom or it is not truth. It

is the perfect instrument like the violin, and must be played in the full harmony of the human soul; while partial truth is like the organ or the piano, full of imperfections, because it is a machine and the *flat fifths* are *compromises* that, by being spread all over the instrument, satisfy the average ear, but never give the perfect and divine harmony of the universe.

Thoughts, like the sunlight, fill the world, but have to be operated by the activities of man; and when the human mind is ready to receive them, they gravitate and are crystalized in the brain, as the pollen of the corn falls upon the silken stigma or receptacle, to produce the full corn in the ear.

We are like corn, the world is but the field,
 If we are true a thousand fold we yield;
 Go search a field of corn, all through and through,
 Alas! the perfect ears are very few.
 The fruits as they appear upon the ears
 Are symbols of the growth and wane of years.
 The infant kernels are so undefined,
 They seem to represent the youthful mind;
 At center of the ear they're plump and fair,
 Strong middle life is represented there;
 While shriveled, shrunken seeds that end the ears,
 Display, as fully, our declining years.
 So when the whole is full, and ripe, and sound,
 Like age, it bends its head toward the ground.
 We live and grow upon the corn at last,
 As nations grow upon the ages past:
 If in this life we've good, not evil, done,
 The fruits thereof shall shake like Lebanon.

JACKSON, MICHIGAN, July, 1892.

CALCIUM PHOSPHATE AS A ROOT FILLING.

BY DR. U. SMITH.

THE treatment of root canals is one of the most delicate and important operations pertaining to dentistry; delicate, because it is necessary to know what remedies, and to what extent they can be applied to them, without injury to the dentine; important, because upon the vitality of the roots depends the permanence of the teeth after the crown cavities are well filled. In fact, upon vitalized roots depends the permanence of good

crown operations. After the nerve pulp is removed and the canal is dried by the use of absorbents, the practitioner proceeds to fill either with gold or some other material, until the entire length of canal is, or is supposed to be, thoroughly stopped.

Now the question is, "Can root canals always be filled from apex to crown successfully in the usual way?" My experience convinces me that a large proportion cannot be satisfactorily filled, nor can the pulps be entirely removed. The teeth of one canal root are favorably situated, and are more easily operated on, therefore the usual method should be invariably successful. But the teeth of two and three roots, each root containing a branch of the nerve pulp, are not so easily reached, nor so easily probed. It is often necessary to reach these canals through posterior openings,—the pulp of one root may be successfully extirpated, while the others, in the same tooth, cannot be reached, or are too small to admit the finest barbed broach. Then what is to be done? In such cases the operator says to himself, "I have done all that I can do; if there is any dead nerve pulp remaining, it must stay," and goes ahead, dries out the cavity as well as possible, and fills from bottom to surface, polishes the surface, if of gold, to a mirror brightness; the patient pronounces it splendid, pays his bill, and all goes on merry as a marriage bell for a while. Sooner or later the dead matter left in the roots gets up an irritation—a war with adjoining tissue—no ease or peace until it has made its egress, somehow and somewhere.

Now can this difficulty be avoided?—in a word, can branches, or parts thereof, of dead nerve pulps be left in the roots without detriment? My practice in such cases is—and it extends over a period of more than twenty years—when I have removed all accessible pulp and some unavoidably remains, I dry the cavity as well as I can, even using the hot air syringe, then I introduce into the roots calcium phosphate, all I possibly can get in, up even to the crown cavity; cap with tin foil or with prepared gutta percha, then proceed with crown filling as usual. In this manner I have invariably met with success. In fact, I usually fill roots when an amalgam filling is intended, with calcium phosphate, even after I know that all the pulp is removed, when so situated that it can be introduced. In all cases where I cannot remove all the dead pulp, I have recourse to calcium phosphate, whether the crown fillings are to be of gold or other material.

Calcium phosphate is compatible with tooth structure, antiseptic in its nature, therefore a neutralizer of dead matter; is a promoter of vitality, and is found in every tissue and secretion of the animal economy.

IMPORTANT STATISTICS.

IN the following pages, an extract from the minutes, explains the action of the Odontological Society of Western Pennsylvania, in reference to the charitable institutions of the vicinity. The papers speak for themselves; yet if time and strength will permit we may offer some practical remarks as to information derivable from these reports. If not, each reader must attend to such duty for himself.—ED. JOURNAL.

DR. GEO. WATT, *Xenia, O.*

Dear Sir:—At a regular meeting of the Odontological Society of Western Pennsylvania, held in Allegheny City, March 14th, 1882, Dr. J. G. Templeton introduced a motion which was sustained, that a committee of two members of the Society be appointed to visit the institutions of charity, the prisons, and asylums, of Pittsburgh and vicinity, and to ascertain by examination the dental hygiene of the inmates of these institutions, and that the committee report the results of its investigations at the next meeting of the Society, which was held at Washington, Pa., on June 13th. The following statistics, with reports, were rendered by the committee. Respectfully,

HIRAM DEPUY, Sec'y.

PITTSBURGH, June 12, 1882.

Mr. President and Gentlemen:

As a member of the committee of two, appointed at the last meeting of the Society to ascertain, by examination, the status of dental hygiene in the hospitals, prisons, asylums, etc., of Pittsburgh and vicinity, and to report to what extent the inmates of those institutions are allowed the necessary services of the dentist, I would submit the following statistics, obtained from the examination of a large number of individual cases, the result of each examination being carefully noted. Your committee members, finding it inconvenient at all times to accompany each other on these visits, concluded that each should note the results of his own ob-

servations, and report to the Society accordingly. In no instance were the mouths of all the inmates examined, but a sufficient number were chosen, at random, to indicate the general condition of the whole number.

On March 31, 1882, in company with Dr. Templeton, visited the

WEST PENNSYLVANIA HOSPITAL.

Examined the mouths of eighty-three male patients, their average age being thirty-eight years. Among these were found eleven edentulous mouths, ranging between the ages of forty-two and eighty-two years. Eleven cases where there was crowding and irregularity of the teeth; twenty-three cases where the gums were in an inflamed condition with cases of *pyorrhea alveolaris*; three cases of constitutional syphilis, where the bones of the face, the mouth and associate parts, were notably affected; fifteen cases where the teeth were in good condition, four of which were exceptionally good, although the gums of some of these mouths were in an unhealthy condition from various causes, but principally from neglect. There were thirty two cases of green and brown stain; one case where the patient, using a preparation of iron, had the teeth so coated as to preclude the ready location of them to the observer. Twenty-eight cases of universal deposit of salivary calculus. One patient was complaining of toothache at the time of examination. There were five who showed signs of having received services at the hands of the dentist at some time in life, these were in the form of artificial dentures, and in two cases fillings. There were from thirty to forty cases where caries of the teeth was active.

This institution afforded no facilities providing for the needs and welfare of its inmates as concerned the teeth. Its inmates are mostly of a transient class, averaging from two to fourteen weeks in attendance.

MERCY HOSPITAL, STEVENSON STREET, PITTSBURGH.

Visited this institution on May 17th. The average number in attendance varies from forty-five to fifty. The mouths of nineteen were examined. The average ages of those examined was thirty-six and one-half years. Of these, five were found to have good teeth, in two cases they were well cared for. The three other cases bore accumulations of tartar, and the gums were in an unhealthy condition. There were four cases where extractions of

the decaying remains of five or more teeth was indicated, and several other cases where less in numbers required extraction. There were nine cases where tartar, green or brown stain, was found abundant; and in a number of cases pustular exudation from the gums was noticeable. There were two cases of extreme irregularity of the teeth, giving peculiar expressions of the features. There was one where the teeth were badly chipped and cracked from ignorant misuse. One case where the direct occlusion of the teeth of the upper and lower jaws had worn the teeth almost to the gums. There was one edentulous mouth.

Of the nineteen mouths examined but one showed where service was rendered by the dentist, this was an upper artificial denture in the mouth of a female. At this institution no attention is bestowed upon the teeth, either for the preservation of the natural ones, or the restoration of lost ones by artificial substitutes. The matron acknowledged that the use of the brush might be an aid in preserving the teeth, but that recommending its use for the inmates had never before been thought of.

CITY POOR FARM, SITUATED ON P. V. & C. R. R.

Visited this institution May 22. It contained, at that time, three hundred and eighty-five inmates. They were of all ages from new-born infants to extreme old age. Of these the mouths of eighty-one were examined. There were nine edentulous mouths, fifteen cases of good teeth, three of which were excellent. Of the former, though sound, the most were in a very neglected condition. There were thirty-seven cases where the teeth were coated with green or brown stain, and large masses of salivary calculus were attached, in many cases, to the molars and inferior incisors. There were eighteen cases where the extraction of several teeth would have proved beneficial. The mouths of eight syphilitic inmates were examined. Three of these showed marked signs of the interference of this disease with the dental organs and associate parts. In one case there was looseness of the teeth from salivation; in a second there was a highly inflamed condition of the gums with ulceration, and in a third there was a peculiar dropping and relaxation of the soft palate, which had six distinct perforations.

There were five cases of uncommon irregularity. Of the eighty-one mouths examined at the City Farm Home, three con-

tained artificial dentures and but two fillings, one amalgam and one gold, were found. The management of this institution provides no means to supply the dental requirements of its inmates.

Having condensed and carefully noted the conditions of the teeth and mouths of the individual cases examined at the three institutions named, I cannot conclude without mentioning the astonishing neglect of that necessary attention which the teeth demand for their preservation and the well being of their owners, and the complete indifference to the results of this neglect on the part of the more intelligent and influential persons who have charge of these indigent, unfortunate beings. Admitting that in a large measure these ravages upon the dental organs of the inmates of "charitable institutions" (?) have been so long tolerated, as a result of custom, thoughtlessness and ignorance, and for the want of a moving stimulus to prevent this sacrifice of human organism, it is still impossible to understand why members of a learned profession, associated with warm hearted and generous christians of enlightened minds and refined tastes, will, even for their personal comfort, be constant eye witnesses, and breathe from an atmosphere contaminated by scores of filthy mouths, and hundreds of decaying teeth.

But as it is not my purpose to comment on this state of affairs, but to furnish reliable information, by statistics, of this matter, I leave it for your consideration, and need but add that no attention whatever, except perhaps the occasional extraction of an aching tooth, is given toward supplying the dental requisites of these inmates. The only one, the Roman Catholic Orphan Asylum, of Tannehill street, Pittsburgh, employs a dentist, who has charge of the teeth of its one hundred and twenty-five or more children.

In behalf of the Society, I must acknowledge the courteous attention shown the representatives from the Society by the managers and attendants of the institutions visited.

Respectfully submitted,

HIRAM DePUY.

DR. TEMPLETON'S REPORT.

AS STATED by the Secretary, each member of the committee submitted a report, and this is Dr. T.'s. It is, perhaps, worthy of note that where the report records the males and females

separately, it shows that the females pay more attention to the cleanliness of the mouth than the males. Notice the green, and brown stains, calcareous deposits, etc. But this is what we might expect, even though the males have the advantage of the disgusting, dirty habit of chewing tobacco, which many claim is a cleansing process.—ED. JOURNAL.

REFORM SCHOOL.

THE Reform School at Morganza was visited April 28, 1882.

The following is the result of observations at that time: The number of mouths examined was 177. Of these, three were under ten years of age, 146 between ten and fifteen years, and twenty-eight between fifteen and twenty years.

Deciduous teeth needing extraction in the mouths of	-	-	-	-	-	-	-	-	53
Decayed teeth needing extraction in the mouths of	-	-	-	-	-	-	-	-	3
Decayed teeth in the mouths of	-	-	-	-	-	-	-	-	38
Green stain in the mouths of	-	-	-	-	-	-	-	-	47
Calcareous deposit in the mouths of	-	-	-	-	-	-	-	-	5
Irregularity in the mouths of	-	-	-	-	-	-	-	-	31
Teeth in good condition in the mouths of	-	-	-	-	-	-	-	-	23
Pitted teeth in the mouths of	-	-	-	-	-	-	-	-	6
Brown stain in the mouths of	-	-	-	-	-	-	-	-	44
Supernumerary teeth in the mouths of	-	-	-	-	-	-	-	-	2
Incisors decayed on the labial surface in the mouth of	-	-	-	-	-	-	-	-	1
Pyorrhea alveolaris in the mouths of	-	-	-	-	-	-	-	-	4
Lower teeth irregular in the mouths of	-	-	-	-	-	-	-	-	2
One or more upper incisors extracted in the mouths of	-	-	-	-	-	-	-	-	7
Upper incisor devitalized in the mouth of	-	-	-	-	-	-	-	-	1

Found one boy, aged nine, having only the lower incisors and sixth year molars of second set of teeth erupted, and also one aged seven, with deciduous teeth all in place and in good condition, sixth year molars not erupted. Cleft palate, one case, boy seven years old; articulation pretty good; "How do you do?" being given tolerably free of nasal accent or sound. The fissure was quite narrow in the anterior portion of the hard palate, terminating entirely about five lines from the lingual surface of the central incisor teeth, which were in their normal positions.

THE PROTESTANT ORPHAN ASYLUM OF PITTSBURGH AND ALLEGHENY

was visited May 9, 1882. Number of inmates, 172; mouths examined, eighty-five, whose ages range from seven to thirteen years.

	<i>Males.</i>	<i>Females.</i>	<i>Total.</i>
Deciduous teeth needing extraction, - - -	31	30	61
Permanent teeth decayed, - - - - -	6	14	20
Irregularity, - - - - -	12	16	28
Calcareous deposit, - - - - -		1	1
Diseased gums, - - - - -	4	2	6
Pitted teeth, - - - - -		1	1
Green stain, - - - - -	4	3	7
Brown stain, - - - - -	14	6	20

UNITED PRESBYTERIAN ORPHANS' HOME.

Twenty-five inmates, twenty of whom are between five and twelve years of age, the remainder under five years.

Deciduous teeth needing extraction, - - - - -	7
Permanent teeth decayed, - - - - -	13
Irregularity, - - - - -	4
Calcareous deposit, - - - - -	4
Diseased gums, - - - - -	7
Brown stain, - - - - -	9
Green stain, - - - - -	1
Deciduous teeth in good condition, - - - - -	4
Central incisor broken and devitalized, - - - - -	1

WESTERN PENNSYLVANIA INSTITUTE FOR DEAF AND DUMB.

Number under instruction in the school, 102.

	<i>Males.</i>	<i>Females.</i>	<i>Total.</i>
Deciduous teeth needing extraction, - - -	31	14	45
Irregularity, - - - - -	11	10	21
Green stain, - - - - -	12	8	20
Brown stain, - - - - -	38	14	52
Permanent teeth decayed, - - - - -	29	16	45
Pitted, - - - - -	2	2	4
Calcareous deposits, - - - - -	11	1	12
Diseased gums, - - - - -	8	--	8
In good condition, - - - - -	--	4	4

One young lady, aged nineteen, mouth full of very badly decayed teeth. Another young lady with central and left lateral broken off close to the gum, by a fall.

Wherever Christianity is the prevailing sentiment in the minds of any people, there we find various eleemosynary institutions established and supported for the purpose of ameliorating the condition of the many unfortunate ones of our race, whether rendered so by their own indiscretion and dissipation—providentially deprived of some one of the organs of special sense—homeless by death of parents or friends—unable to provide for

themselves on account of the infirmities of age, and rendered helpless in the service of their country, or by accident in the ordinary pursuits of daily life. In addition to these might be mentioned reformatory schools for incorrigible youth, prisons for restraining, punishing and restricting the lawless. Also almshouses, giving care and shelter to the indigent.

In all the different asylums or institutions referred to, provision is made for the services of the general practitioner of medicine, while specialties, including that of dentistry, are entirely ignored. The M. D. in charge loves to have it so. If it be asked with reference to this matter, what advantage will it be to the inmates of any charitable asylum, State or municipal institution, to have the services of a competent dentist, we answer that "Dental surgery being a specialty in medical science, the dentist is professionally limited to the diseases of the dental organs, mouth," and associated parts; "with these he is more familiar than the general practitioner is, or should be expected to be." Hence the competent and honorable dentist is entitled to the confidence and respect of the public and all boards of managers as well, for whose information it may be stated that many local affections and surgical operations on the maxillary bones should be referred to the dentist, as diseases of the eye are to the oculist, and this with even greater propriety.

A knowledge of special pathology must, of necessity, be based on a thorough acquaintance with the general principles of general pathology, therefore D. D. S. is an advance on M. D.

A few things properly within the sphere of the dental practitioner might here be noticed, viz: "inflammatory affections of the gums, such as are developed in the course of the acute exanthemata, as variola, scarlet fever and measles; and are accompanied by indications peculiar to these diseases." Several other inflammatory conditions of the gums, as "croupous inflammation, being liable to assume a diphtheritic character, also phlegmonous inflammation, suppurations, acute inflammatory, œdema, gangrene of the mouth, etc."

"Physicians, as a general rule, are not familiar enough with the diseases of the mouth, or the process of dentition. Dentistry is considered by them as a sort of step-child of surgery," and properly treated by being left in the cold, as beneath the dignity of their notice.

A little investigation is sufficient to convince any one of the importance of hygienic treatment of the mouth; and the advantages gained by correcting the vicious secretions of the oral cavity, thereby preventing their being taken into the stomach to impair digestion, which they always do, whenever the mouth is allowed to remain in a condition to emit a fetid odor.

In such cases the gums become involved, and secrete a purulent matter, which exudes from their margins, finding its way to the stomach in all acts of deglutition. Being in this way mixed with the food, a large portion of it goes into the circulation in the process of nutrition. The effects are symptoms of dyspepsia which do not, or only partially, yield to any medication that ignores the proper cleansing of the mouth.

Congestion of the mucous surfaces of the mouth and fauces cases, which are so numerous at the present time, are seldom traced to their origin by the general practitioner. In the above remarks we have briefly alluded to a few abnormal conditions, which should be under the care of the dentist.

The word *dentistry* is not, as so many even in this progressive age think, the mere synonym for tooth "pulling," as if that was all a dentist could, or ought to do. It seems that public opinion is very slow to recognize the fact that the doors to science stand wide open, and that all who will may enter and drink at the fountain, and, if possessed of the capacity, may even pluck "the tip-top blue blossom,"—dentists not excepted.

Dental colleges are conducted in accordance with the fact that the dentist needs to be educated the same as the physician, with instruction in dentistry added to the curriculum, though not as a mere caudal appendage.

I do not say that the D. D. S. is head and shoulders higher than the M. D., but I do say that he is superior in manipulative skill; also that he is, or ought to be at least, equal in medical knowledge.

In none of the institutions previously referred to, so far as the writer has been able to ascertain, has there been any provision made for the services of a dentist; and I am not aware that this subject has ever been under consideration by the managers, or those having control; neither do I know of its ever having been discussed by any association of our profession. The question remains, shall we agitate the subject, and as a profes-

sion, assert our claims, either for recompense or otherwise? or shall we let it go as it is, and we go on our way, meditating of our unworthiness of recognition as public benefactors?

The dear people have required our services and given us their patronage, otherwise we would not be here to-day to consult together for our mutual improvement, in order that we may render better services for the small amount of lucre often reluctantly given us in exchange for knowledge and skill, the acquisition of which requires many years of study, close observation, and large expenditure of money. J. G. TEMPLETON.

Editor's Specials.

"Write the Vision and make it plain."

AMERICAN DENTAL ASSOCIATION.

For years we had given up all hope of again being able to meet with the Association. The fact that much of the time we were restricted to the house; the fact that, at best, it was excessively painful, and regarded as dangerous to ride on the cars, added to that that the meetings have been usually at points distant from us, made us see the necessity of trying to feel reconciled to do without the smiles of brethren we were likely to meet no place else. Last year the Association adjourned to meet in Cincinnati, and our hopes brightened. Since that we have been disappointed by physical inability to attend pleasant meetings at Ann Arbor, Detroit, Cincinnati, and Indianapolis. We looked forward to August 1st with fear and trembling. But time tells, the date came, so did the Association, and so did we.

We had not seen the Association since its Detroit meeting, in 1874, and we expected to see great changes, and we saw them. The President, Recording Secretary, and Treasurer, were of our old acquaintances, and time had touched them so tenderly that they looked natural. Of some of our old-time friends we cannot say this; and with some there is a sad decline in health and strength. May their lives be long spared and their health restored is our earnest wish.

But the new friends—friends we had never met, but who,

nevertheless, seemed like most intimate acquaintances -- what an array of them ! And to us they seemed as if just made -- all new and of the same age. And to think that, in the years we were shelved, quite a new generation of men had seized the helm, and were running the ship of dentistry, with science for sail, and art and skill for ballast, was a phenomenon too great for a single thought. How rapidly time flies, and how glad we are that we never relaxed our efforts or lost our interest in the advancement of dental science. Though unable for active duty in practice, we were much, indeed most of the time, able for mental labor, and as it afforded enjoyment in causing us to forget pain to some extent, we read, studied, and experimented as industriously as when in health, while we had all the more leisure, on account of our debility. We have our reward in that we are able to edit the JOURNAL so as to please many readers, and in being able to enjoy, if not to aid, such meetings as those of the Association, our State Society, and the Mississippi Valley Association.

We expected cordial greeting from the old members, and we received it -- expected it because we were not conscious of ill-will from any of them -- not conscious of having violated the golden rule in reference to any of them, and we received it because they were gentlemen and friends. But the reception accorded by our newly made friends -- made through the JOURNAL and otherwise -- was in the nature of an ovation. We were overcome and overwhelmed by their manifestations of friendship. Sometimes they almost made us forget that we were no longer young. With such friends 'twere worth while to live. But we cannot express the satisfaction it affords us to see that the progress of our profession is committed to safe hands. The younger brethren can easily take care of the profession if they take care of themselves. If they follow the good advice given to King Lemuel by his mother, all will be well with our profession and its members and patrons. "Give not thy strength unto women, nor thy ways to that which destroyeth Kings. It is not for Kings, O Lemuel ! it is not for Kings to drink wine, nor for princes strong drink, lest they drink and forget the law, and pervert the judgment * * *"

We are sorry to say that a few of the members at the late meeting are not following this advice, and are therefore in danger. And, my dear young friend, you are one of them. You are in danger ! Halt ! 'bout face ! double-quick ! march !!

Since the meeting last year, the reaper, with his sickle keen, has harvested some of our members. We shall not all meet next year. Of some of us the stereotyped phrase, "WHEREAS, In the mysterious providence of our Father above, ———, has been taken from time to eternity," will be placed upon the record. Shall we not do with our might the work set before us? Or if we are spared till the next meeting, the time, at all events, must be short. Let it be profitably used.

A DISTINCTION WITH A DIFFERENCE.

Most decidedly so. For example: Our friend, Dr. Thomas, of Detroit, calls attention to page 398 of our August number, where, in the report of the discussions of the Northern Ohio Dental Society, we find him represented as saying, "out of every ten or twelve cases about five would have to be extracted, and three would drop out of themselves." The Doctor writes us, "*I said no such thing*, but what I did say was this: 'That from a record of more than five hundred cases of replantation in the past five years, I have known of the roots of three or four *only*, becoming absorbed and the crowns dropping off.'" He adds, further, in the letter, "I have never yet had to re-extract a tooth that I had previously replanted."

The Doctor asks us to make the correction, which we now and here do with the utmost cheerfulness. He says, "I should very much dislike to go on record in any such way, upon a matter in which I am so much interested." Indeed, we should think so. At best reporting is difficult; most halls are difficult places to speak or hear. We have no doubt our reporters do their best. We do, when we report, and yet mistakes and misunderstandings creep in. Don't be discouraged, Doctor; try us again. And, better still, write the JOURNAL a paper on Replantation and Transplantation, and see if we don't correctly represent you.

DR. PEASE'S ARTICLE.

WE have cheerfully given place to this article notwithstanding it requires more than usual space, and other matters were pressing for admittance. We have long regarded Dr. P. as the

ablest representative of that side of the question to be found in our profession. His age, experience, and education, place him in the position once held by Saul among the people. He is not so noisy as some, but when he speaks we incline to listen. We wish to give the ablest that can be said in favor of amalgams for filling teeth, and we presume we are doing it. We may take time to notice, and perhaps criticise, some of his positions, but neither time nor space will permit anything of the kind in this number. Suffice it to say that we have seldom seen an article which more uniformly "begs the question." In general, it assumes as proved the very points in dispute.

But we are reminded that this subject is likely to take up too much space. We must draw the lines somewhere, and so, we will not, in the current volume, let in a new disputant. Drs. Pease, Keith, Driscoll, "A Physician," and the editor may possibly be permitted to continue, especially as Dr. K. has notified us that he has a few more pages which he regards as necessary to finish the article in the present number; and it may become necessary to correct misapprehensions.

OUTLANDISH TERMS.

THE one that torments us now is "chemism." Of what use is it? What is gained by using it? Let it be banished from educated lips, or give it company by similar mutilations of analogous words. Let us not speak of grammar but *gramism*, and call rhetoric, *rhetism*, geometry, *geomism*, etc. Of all things not positively wicked, affectation is the most disgusting; and by scarcely anything else is the possessor so much lowered in the estimation of sensible people.

Then we have another class of which the barbarous *pulpitis* is a representative. Such words, if worthy to be called words, have no legitimate derivation. Inflammation of the stomach is called *gastritis*; but how would it sound to say *stomach-itis*. Charlie thought he had a felon on one of his pedal extremities, but is gratified to learn that he merely suffers from an attack of *toe-itis*. Some of these ridiculous terms are freely used by parties who are reaching for recognition by the medical profession; but they would better drop them at once, if they wish to be recognized by anybody as sensible or educated men.

DOCTOR BERRY'S ADDRESS.

At the late meeting of the American Dental Association, the Reception Committee selected Dr. A. Berry, one of the earliest graduates of the Ohio College of Dental Surgery, to deliver the welcoming address. The meeting was called to order by the President, Professor H. A. Smith, of this city. He introduced Dr. Berry, who spoke as follows:

Mr. President and Members of the American Dental Association:

The partiality of my brethren has imposed on me the pleasing duty of welcoming you to the Queen City. It were better had this been assigned to some one who could give a more fitting expression of our feelings. But I yield to no one in the heart-felt pleasure your presence gives us. Indeed this large and imposing convention must be gratifying to you all. From the position of our city, the center of the population of our country, it is convenient for conventions to meet here. Several have done so this year, and our city is fast acquiring the name of "The City of Conventions." In character and importance none of those gone before us surpass this. Ours is the youngest of the professions. As compared with others it is in its infancy. But it is our just glory that in the last forty years it has made greater progress than any of the others. Much of this is due to American dentistry, whose pre-eminence is acknowledged the world over. Other professions may have more high-sounding pretensions, but our mission is the relief of human suffering, often the most poignant, and the preservation of organs vastly important for health, comfort and beauty. It is not to be forgotten that the greatest discovery in modern times in surgery—anæsthesia—is a discovery of our profession. But let us not rest on our past laurels. Let us press forward. Let us demand that no one be admitted to our brotherhood unless he has the requisite education.

During the fifteen years which have elapsed since you held your annual convocation here the dental societies, dental periodicals and dental colleges of our country have more than doubled in number. There has in this time been a steady progress of our profession, in which your society had a leading part. While in these years all other departments of science have made important

advances the dental profession has, perhaps, outstripped them all. This was formally acknowledged last year by those best able to decide. The American Medical Association, and the International Medical Congress, recognized dentists as belonging to the fraternity engaged in the practice of the healing art.

You have before you evidence of the great development of the resources of this region, in its material and educational interests, since you last held your convention here.

The Southern Railroad, 336 miles in length, representing \$20,000,000 Cincinnati finances, with its extensive Southern connections, facilitating commercial and social relations, promotes fraternal feeling between the people of distant sections of our Union.

You look down on three substantial structures spanning the stream which the æsthetic French call the "Beautiful River;" on one of the largest and best Music Halls; on McMicken University, where thorough instruction is given to pupils of either sex of our city without money and without price; on our large Public Library Building, with its stores of learning, and on the most beautiful fountain ever erected.

You will find visits to our Astronomical Observatory and our Zoological Garden pleasing and instructive.

You are surprised when you recollect that here, less than one hundred years ago, was the home of the red man, undisturbed in his rights by the pale face.

In munificent bequests for educational and art purposes, Hughes and Woodward with their High Schools; McMicken with his University; Springer with his Music Hall; Davidson with his Fountain, and West with his large donations for the construction of a grand edifice to contain the treasures of our Art Museum and a Perpetual Endowment Fund, have set an example worthy of imitation by millionaires of other cities.

In its eleemosynary institutions our city is abreast of the advanced civilization of the age. The large and commodious Cincinnati hospitals, controlled and supported by the city; the extensive Betts Street Hospital, with its several others, sustained by that church whose charity is bestowed on all suffering applicants, without regard to race or creed; our orphan asylums, children's and old people's homes, and other charities minister abundantly to the wants of the needy, poor and suffering among

us. You see the spot where was founded the second dental college in the world, and where was organized the Mississippi Valley Dental Association, which for more than a score of years has been the oldest dental society in existence.

Gentlemen: The Mississippi Valley Dental Association, the Ohio State Dental Society, and the dental profession of this vicinity, extend to you a cordial welcome to Cincinnati. May you have a pleasant and profitable reunion. [Applause.]

"WHAT FUN WE TAILORS HAVE!"

A SMART boy was bound out to learn to make coats. Delighted with his new experience during the first day he would ever and anon break out with the exclamation in our heading. By the second day he had become so saucy that one of the journeymen pressed a boot toe against his trousers in a way not to endanger the toes within the boot. Then the boy said, "If I had known this I wouldn't have learned the trade."

There was nothing peculiar about that boy. His counterparts are seen everywhere. And usually they grow to be useful men.

We know a "scientific editor" who repeatedly tells us what wonderful opportunities he has had in *the last two years* to study—rather to apply chemistry in its relations to dental science. And he takes for granted that he knows more about these things than all the rest of us, and emphasizes the phrase "*real* modern chemistry," allows we may be practical dentists while he is a *chemist*, takes for granted that we dropped all thought of chemistry with our schoolboy studies, but that he is up with the times, and about five words ahead; while the facts are that some of us have been recognized as teachers of chemistry longer than he has lived, and have studied and taught its relations to dentistry more years than there are months in the period of his boasted opportunities. And so unfamiliar is he with the chemistry of the oral cavity that he has not even a chemical memory in regard to it, as is evidenced by his combatting the idea that hydrochloric acid is the cause of white decay, which nobody ever claimed, we think, and his boyish experiment to prove that acetic acid is not found in black decay, as of course, it would not be.

In his August number he reminds us that we have overlooked

the fact that he spoke of the "*thinking chemist*" as not being familiar with tooth-decay. Sure enough! And, coming to think of it, *there is but one*. We might parody the Mother Goose love-letter rhyme thus:

A real chemist here you see—
You see him as you look at me;
There are not even two or three,
But only one, and I am he.

Such seems to be the present estimate placed upon himself by the scientific editor, but like the tailor boy, he'll outgrow all such fancies, and become quite useful.

So far back is our scientific editor on this subject that he considers "decay a physiological process," that "decay is an *ulcer* only modified by the difference of tissue." If we understand him, he regards dental caries as identical with caries in ordinary bony tissue. He has been led astray, probably by the term "caries," which is a misnomer when applied to the teeth; but holding such views, at this late day, it is evident a discussion between us cannot be profitable, and we have written this mainly to say that it is ended, so far as this subject is concerned. If we are to confer with profit we must select a subject on which we are more nearly together.

We have had the pleasure of meeting the scientific editor since he wrote the editorial we now mainly refer to, and we like him. But we advise him to post up on the nature of dental caries, as his present views are such as were held by the medical profession from time immemorial, and while such were generally held, dentistry was not, and could not be a science or an art. The discovery that the so-called dental caries is something else than an ulcer, something entirely different from caries of bone, laid the foundation of dental surgery; and to abandon this truth would take us back to the darkness of the past century.

While enjoying, if not profiting by, association with our friend, at the late meeting, we were amused at his innocent assumption that all but he, were necessarily behind the times on chemistry, even though one teacher was present who has taught it in its relations to the mouth for thirty or forty years, and is still teaching it, and others who had taught it nearly, and studied it quite as long, and who make it a daily study now.

The comparison of the geologist knowing more of minerals than the coal and iron merchants will not answer in these cases;

for several parties were present who have studied the science as closely to the present hour as has the "scientific editor."

We are too far apart to discuss the chemistry of dental caries, therefore, adieu.

THE LATE MEETING AT CINCINNATI.

WE had not seen the American Dental Association at work by sections. Standing committees were formerly relied on. We cannot say that we are favorably impressed by the change. There seems to be greater complexity. When the plan was adopted we looked for good results, thinking that each man on a section would feel his responsibility and do something; but the late meeting showed nothing of the kind. All the sections were called and but one was ready to report; and the Association in adopting, by a nearly unanimous vote, the report of a special committee decided that its report was not on the subjects assigned to it. So it might be said that all but one had nothing to report, and that one, a half hour's reading less than nothing, in so far as furthering the aims and efforts of the Association were concerned. It may be that a similar state of unreadiness of standing committees has occurred in the history of the Association, but we do not now recall an instance. Most and we believe all the sections reported during the meeting.

The section that was ready to report was that on Dental Literature and Nomenclature, Dr. W. H. Atkinson, chairman. The report was a continuation of, or in the same vein with, the reports of the same section for the past four years. The members, with few exceptions, gave the most respectful attention, though we suppose they were, like ourselves, not understanding a sentence of what was read.

At the close of the reading, Dr. Watt moved that the report be referred to a special committee of five (the mover not to be one), who shall report at the present meeting what shall be done with the paper. The motion was seconded by Dr. Rehwinkel, and after a vigorous discussion was carried by a decisive majority.

The committee through its chairman, Prof. Pierce, of Philadelphia, reported, in substance, that the paper was not on the subject pertaining to the section, but on general philology, and

recommended that, if the Association wished for further discussion in this line, a section on philology be established; but as similar reports had been presented during the past four years, and were received without adverse criticism, it is recommended that this be allowed to take the usual course and go into the hands of the Publication Committee. The report was adopted by a unanimous vote.

We were not present the last day of the meeting, but we have not heard that a section on philology is established, and, therefore, we hope we are done with the vaporings of Stephen P. A.

Dr. Atkinson is worthy of the highest commendation for his industry, earnestness and energy. It is a pity that he totally mistook the subject. The labor he bestowed on the stuff reported, might have almost totally reformed our defective nomenclature, had it been wisely directed. He always works; and when he takes a wrong direction, there is a great waste of power; and so is there when a locomotive jumps the track.

When the Association was organized we supposed a great portion of its strength and usefulness would be derived from volunteer essays and papers from learned and able men outside of its active membership. Good may have been obtained from this source in the past. We are not able to say whether it has been or not; but if volunteer papers are to be treated as was one from an able man on a most important subject, at the late meeting, we would ask that our friends be excused from offering them. We don't know what was the trouble, but we are almost sure that the best paper at the meeting was not read.

The Association was sumptuously entertained, and the whole affair was managed by the reception committee and others responsible, that less time was lost from the legitimate work of the Association than is usual, and yet all went as merry as marriage bells. The Association, at a former meeting here, was entertained in a princely manner, and in view of that and this, it is quite probable it will not hesitate to select Cincinnati again in due time, even if not as far north as the vicissitudes of the weather make desirable. By having the meeting at the Highland House, a very pleasant climate was obtained, quite equal to that of Detroit or Cleveland.

The Association was cordially welcomed to Cincinnati in a

most eloquent speech by Dr. A. Berry, delivered in his happiest vein. A copy of his address has most mysteriously disappeared from our desk, but we expect to find it, nevertheless, and lay it before our readers. As the President, Dr. H. A. Smith, belonged to Cincinnati, he requested Vice-President Barrett to respond to Dr. Berry's address of welcome, which he did in most appropriate style.

Taking it all in all, the meeting was profitable. More than one distinguished member has written us to the effect that the settlement of the status of the so-called reports on Dental Literature and Nomenclature is worth more than the cost of the meeting. This took but little time, and, though we regard it as important, was a small matter compared with the sharpening of mind against mind, resulting from the free exchange of thoughts and ideas.

We have but little expectation that we shall see another meeting of the Association; but we shall remember this one with sincere pleasure.

Correspondence.

"I charge you that this epistle be read.

8 Quai des Eaux Vives, }
 GENEVA, July 17, 1882. }

DR. GEORGE WATT.

My Dear Friend:—Your article in the June number of the OHIO STATE JOURNAL OF DENTAL SCIENCE on making lower plates is a good suggestion; and if it was practiced more by the profession, we would meet with greater success in all lower plates. Over here I find it hard to get patients to wear a heavy plate. They seem to think the lighter the better. But when one is found who will give the heavy plate the trial, even in upper plates, they are profuse in their praise, and can never be induced to wear a light plate afterwards. I know of one lady who has worn a full set, upper and lower, for about fourteen years, which I made on Watt & Williams' metal, with gum teeth, and she cannot be induced to give them up for a beautiful set on rubber. I have made a number of sets on the same metal by moulding a plate with an outside rim, and attaching the teeth with rubber,

using gum or plain teeth, as the case might suggest, and in the case of plain teeth, making the gum with Ash & Sons' pink rubber, which bleaches in alcohol to a very natural gum, when properly vulcanized. Our patients on this side do not take kindly to gum teeth. I find very few cases where the plain teeth cannot be made to look much better than the stiff blocks, as we get them from the manufacturers. The plain teeth of Ash & Sons, London, are far superior to anything in that line I have ever used. I am so seldom called upon to extract teeth in my practice here, that I dread it when I am compelled to resort to the forceps, which must be done in cases of regulating sometimes. A young miss, about fourteen years, called upon me with the canines very prominent, and desired a tooth extracted on either side, to give them a chance to fall into line. As other means seemed out of the question, whereby the deformity could be remedied, I decided on extracting the sixth year molars, which were decayed. I succeeded in extracting the left superior first molar, but it was so difficult that both operator and patient were perfectly willing to leave the other molar in the jaw. After a year had passed, I saw the patient again, and as the result was so satisfactory on that side of the mouth, the canine having dropped into line, it seemed very desirable that the other first molar should be extracted. But as we had not forgotten how difficult had been the operation before, we all dreaded this one. I thought I would try wedging the molar away from the bicuspid, with the hope that it might be a little less difficult to extract. I placed as large a piece of rubber as possible between the first molar and second bicuspid, with instructions to call next morning. To my great surprise, the tooth came out with a very slight pull, and the roots were unusually long, and stood out like a three-legged stool. I think it worth a trial when you have an unusually difficult tooth to extract. What a blessing to suffering humanity that our profession has made such rapid strides towards perfection that that most unnatural operation is fast becoming one of the lost arts. When the public arrive at the point to believe that extracting teeth is almost as unnecessary as to pull off arms or fingers, our specialty will have arrived at the point when it will be able to arrest the diseases of the teeth, and by its skill be able to save them through life, or until they drop out from old age, after we have attained to our second childhood.

This reminds me of a curious and painful accident which happened to a butcher here the other day. He was a very large, portly man, which I believe is nearly always the case with men of that calling, (but we must not infer that all portly men are butchers). This man stepped upon a chair and reached up for a piece of meat, lost his balance, and in trying to save himself, he threw out his hands, and a heavy gold ring on the middle finger was caught by a hook, and his finger was torn out of the hand and left hanging on the hook, and the poor man fell fainting on the floor.

We all know that honey is good for sore mouth. A patient stumbled on to the best thing to cure her sore mouth from wearing a new plate, by smearing the inside of the plate with honey, which soothed the irritation and cured the soreness.

As ever, truly your friend,

N. W. WILLIAMS.

BEDFORD, IND., July 22, 1882.

Editor of the Ohio State Journal of Dental Science:—

WHILE I have never followed Prof. Flagg and his co-new-departurists into their extremes in reference to plastic fillings for teeth, I must say I am as far from agreeing with those like Dr. Keith, as set forth in his article published in the OHIO JOURNAL for July. He says, "hundreds of women suffer untold agonies from nervous spasms from the effects of silver filled teeth." Then he proceeds to make them "told" agonies, by saying they are "neuralgias, headaches, catarrh, drooling, dry-mouth, throat disease, and *general rottenness*." Very well; if he knows of such cases, he has discharged part of a plain duty to the profession and humanity, but not all. Assertions may have incontrovertible facts to back them, or investigation may show the narrator to have been badly misled. Let Dr. Keith give names, dates, locations, etc., so that all who would learn, can do so for themselves, as to whether there were not other and *real* causes for these effects which he charges to amalgam. To talk about the effects or results that may be produced out of the mouth by certain strong acids in connection with silver, zinc, etc., proves nothing as to what actually occurs in the mouth, with its modifying fluids, conditions, etc. Amalgam for filling teeth is

unsatisfactory enough for reasons upon which there is little controversy, if people would pay for gold; or "if" people would apply for filling early enough in the progress of decay; but as long as these two reasons for its use continue, it will be used by almost every dentist in the world, unless Dr. Keith could substantiate his charges as already enumerated. This I earnestly hope he will proceed to do, and that he will receive all needful assistance, that we may know what does result from the presence of amalgam in human teeth.

Respectfully,

W. E. DRISCOLL.

Editor of the Ohio State Journal of Dental Science:

DEAR SIR:—I RECEIVED from an unknown source, through the post-office a short time since, a pamphlet of four pages, treating on "Carbolic Acid and Creosote. Their Chemistry and Therapeutical Application to the Practice of Dentistry," by Truman W. Brophy, M. D., D. D. S. I was much interested in the perusal of said paper. The teachings of Dr. Brophy, as set forth in said pamphlet, in so far as they relate to the chemistry of carbolic acid and creosote, I presume are, in every particular, correct. But in the therapeutical department of his subject, some of his deductions are, in my opinion, misleading, and at variance with numerous demonstrations, experiences, and observations of the last eleven years of my practice in the profession of dentistry. The relations of science to an element, compound or mixture, therapeutically considered, has been misapprehended in many instances, even by those who know much of science, so-called. The declaration of Dr. Brophy, given in said pamphlet, that "The escharotic action of carbolic acid and creosote contraindicates their use as an application to exposed pulps, the vitality of which we endeavor to preserve," is, in and of itself, somewhat forcible, seemingly possessing the power of a scientific truth; yet there is wherein his declaration is misleading. In the sentence immediately following the above declaration, Dr. Brophy says, "If, however, we make a solution of from one to five per cent. we have an excellent remedy, slightly stimulating and antiseptic, which may be applied to an exposed pulp without fear of causing a slough and subsequent death of the part." This latter quotation from the Doctor's pamphlet is also misleading. It is too finely drawn out. His solution is entirely too attenuated, and, as

a rule, will not be successful in the hands of any one, in preserving the vitality of exposed tooth pulps. Furthermore, the declaration immediately following the above quotation, Dr. Brophy seems to send forth with an increased degree of conscious strength and assurance; yet it is also misleading when considered in its proper light in relation to wood creosote. The Doctor therein says, "I regard it bad practice to apply an escharotic to a pulp, the vitality of which may be preserved by proper treatment." It cannot be doubted that Dr. Brophy's solution or attenuation of carbolic acid or creosote is, in its action, non-escharotic, is only slightly stimulating, and antiseptic, as he claims; yet a careful record of facts, in connection with a series of properly conducted experiments, will prove that Dr. Brophy's proposed solution will fail of success ten times, where undiluted creosote will fail less than once, in the preservation of pulp vitality.

Dr. Brophy closes his arguments against the use of undiluted creosote as applicable to the practice of dentistry as follows: "Carbolic acid or creosote, therefore, if used in contact with exposed pulps, must not be stronger than a five per cent. solution." The little "if," made use of in the above quotation, may possibly, be indicative that, in the Doctor's judgment, even the use of his extremely diluted condition of carbolic acid or creosote might possibly be somewhat of a hazardous experiment, when the vital forces of an exposed tooth pulp is to be preserved. As the Doctor advances in his discussion, in relation to the therapeutical application of carbolic acid and creosote, he says, "Since carbolic acid has the power to arrest suppuration, and to promote healthy granulations, it is invaluable in the treatment of alveolar abscess," and other pathological conditions named in his pamphlet. This argument is sound. But how was a knowledge of these facts obtained? Was it by a process of reasoning, derived from, or based upon the escharotic qualities of carbolic acid or creosote? Or was it by means of actual experiments and observation of results, arising from the use of the drug in a large number of cases? The history of man's understanding of science in her various relationships, has, in many instances, proven to the world that some, even of our wise and learned men, in the midst of all their accumulated knowledge, have, in many instances, misapprehended the true science, especially has this been the case in the use of remedies, as applicable to abnormal conditions existing

in the human body, or in any parts thereof. Experience, with her deductions and conclusions, must be granted a place in the work of our enlightenment. We cannot afford to yield all to methods of reasoning, based upon a known principle or quality existing in a given remedy or specified drug. If we forcibly base reason, so-called, upon an insufficient foundation and build thereon our structure, it must tumble down. Reason and experience must go hand in hand. Experience enables me to announce the following facts, viz: For more than eleven years (being less than one-third of the years of my life already devoted to the practice of dentistry), I have used wood creosote in direct contact with exposed tooth pulps, many of which for weeks and months preceding the time of operating, were troublesome and painful to my patients. A wonderful success followed my labors in this direction, and that too without dilution of the creosote used in either water, alcohol or glycerine—these three being the diluting elements spoken of in Dr. Brophy's paper. Others in the profession whom I know are pursuing the same method of treatment with equal success, a success equivalent to ninety-five per cent. where actual sloughing has not set in. Therefore, I cannot, on the basis of contra-arguments, be they ever so plausible and spacious, consent to abandon the use of wood creosote undiluted in my efforts to preserve the vitality of exposed tooth pulps. When my experience successfully controverts my science, I conclude I have forced my science and have been building upon uncertain foundations.

When I have before me an exposed pulp, an inflamed and painful pulp, a lacerated, bleeding pulp, the preservation of the vitality of which is always my desire to accomplish, my only dilution or attenuation of wood creosote is, to mix to a proper consistency with oxide of zinc, and apply the mixture in direct contact with the exposed point of the pulp, placing over said mixture a properly formed cap for retention of the same, and also to prevent undue pressure being brought upon the pulp. Success being the objective point, I thereby attain thereto with much satisfaction to my patients and myself.

Whether the coagulum, or eschar, brought into existence by the action of the creosote used, becomes brown, as in the case of surface exposure to the atmosphere, does not concern me, nor yet am I concerned in relation to any supposed necessity that said

eschar must be thrown off by sloughing, as in an open exposure. Seemingly, Dr. Brophy is somewhat in error, in deciding to treat as one and the same in their therapeutical application to the practice of dentistry, carbolic acid and wood creosote. Take for consideration the results arising from the action of creosote upon vegetable life germs, and those from carbolic acid, we can thereby discover they are not alike in every particular. For instance, grains of wheat, rye, oats, corn, and many other vegetable seeds, after remaining immersed in wood creosote for many days at a time, when taken out and properly steeped in pure water, will germinate, grow, and produce their kind, whilst the same species of grain or seeds, immersed in carbolic acid for a like, or shorter length of time, and subsequently treated in the same manner as the others, will not germinate, the life force, in the latter case, being utterly destroyed. These experiments seem to establish the fact of a difference. Further, experience demonstrates that the use of undiluted creosote, in proper combination with oxide of zinc, when properly retained in actual contact with the exposed portion of living tooth pulps, will not destroy the vitality of such pulps. Science is ever presenting us new fields of usefulness in the use of remedies, some of which have been long known to possess certain principles or qualities. Therefore, our discernment and discrimination should ever be on the alert, to discover the most desirable and successful remedies for the treatment of each pathological condition.

I am in accord with Prof. J. Adams Allen, quoted by Dr. Brophy as reliable authority, viz: I am aware that to present a given case, or an inferior number of cases, is not proof positive of success in the use of a given remedy or drug; yet it must be conceded that the more numerous the given cases, the more hopeful are we as to results arising from the use of the given remedy.

In closing this article, I will present two interesting cases which came under my notice within the past ten days, each of which is but the expression of many of like type and character, both as they relate to previous conditions of pulp exposure and subsequent successful preservation of the vital forces thereof and their after usefulness. In the Summer of 1876 I was called on by Mrs. G., in relation to treating a right superior lateral incisor, which had caused her considerable pain. I found the pulp exposed, and my excavations caused it to bleed quite freely. My

records showed that I covered the exposure in the manner indicated in the preceding pages of this paper and filled the cavity. In my recent examination of the tooth, I discovered decay on the lingual surface of the tooth, along the border of my former filling. I removed both filling and pulp covering, whereupon a quick, active hemorrhage followed the latter removal. I proceeded to check said hemorrhage by the use of creosote, reformed the cavity, and covered anew the exposure of the pulp, using wood creosote in combination with zinc oxide, closed my labors by refilling said cavity, and am confident of coming success. Yesterday I had on my chair a like case of former exposure, in which I treated the pulp in the same manner, in 1874, in the city of Nashville, Tennessee, said tooth being the right inferior six year molar, made in it a large crown filling, containing a little over eighteen grains of gold. Patient now in feeble health and filling in good condition, discovered a small cavity at the cervix, mesial approximal surface, extreme sensitiveness in the newly discovered cavity, was an evidence of a continuance of the vital forces within the formerly exposed pulp. In so far as these two cases may relate to success in the preservation of the vitality of exposed pulps of human teeth, they are herein given, not as exceptions in the use of undiluted wood creosote, but as the rule of success in the proper use and method of using wood creosote in its therapeutical application to the practice of dentistry.

JAMES S. KING, D. D. S.

PITTSBURGH, PA.

Societies.

“Wherewith one may edify another.”

THE MAD RIVER VALLEY DENTAL SOCIETY

WILL hold a meeting in Dayton, on Tuesday, October 24th—forenoon, afternoon and evening—place selected by Dayton members. Officers will be elected; a paper by Dr. Berry, on Dental Colleges, is expected; and a good programme will be carried out. All dentists in good standing are cordially invited. Let us revive the good—the best little Society. By order of a conference of

MEMBERS.

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Contributions.

“A word fitly spoken is like apples of gold”—SOLOMON.

REFLEX LESIONS OF THE ORAL CAVITY ASSOCIATED WITH PREGNANCY.

BY JOSEPH RICHARDSON, M.D., D.D.S.

At a late meeting of the Indiana State Dental Association, it was my privilege to read before that body a paper entitled “Correlated Diseases of the Teeth and Ear.” (See August number of the DENTAL REGISTER.) The purpose of the paper was to present some ascertained facts in regard to the reflex nervous relationship existing between the teeth and the various structures of the auditory apparatus, and to account for the manner in which not only functional but nutritive or trophic diseases of the latter occurred as a sequence of irritation having its source primarily in the teeth or gums.

Researches directed to the ascertainment of sympathetic relationships of other organs, as the eye, brain, stomach, uterus, etc., would probably reveal them also as so many areas correlated

in like manner as the ear to primary disorders of the organs of the mouth.

It is not my purpose, however, to consider further, in this place, reflex diseases of organs or regions more or less remote from the mouth, but to reverse the order of inquiry, and trace if possible the sympathetic dependency of certain disorders of the teeth upon functional disturbances or structural lesions primarily located in some remote part of the general organism; premising, that a better understanding of the laws of reflex action, a more familiar and exact acquaintance with nerve function, and a clearer insight into the correlated areas existing between widely separated regions, would lead to more rational and trustworthy views of the etiology of many sympathetic disorders of the buccal cavity, the origin and nature of which are, as yet, measurably a sealed book to us.

In the discussion of my subject, I shall, in order to confine myself within reasonable limits, consider only certain abnormal or pathological states of the oral cavity frequently associated with pregnancy.

It might be thought that, as utero-gestation is essentially a physiological act, it would hardly be competent to give rise to such irritation as would establish sympathetic disorders of the teeth, and this would doubtless be true if the uterine functions during this period were always normally performed. But the simple fact that the reproductive act is, ordinarily, a *conscious* one, leads obviously to the conclusion of functional derangement, for the senses take no cognizance of the normal processes of organic life, and hence no one, in perfect health, through the medium of common sensation, is supposed to have any mental perception of a brain, stomach, liver, or uterus, or of their functional processes. The very uniformity of the oral affections coincident with pregnancy is, in itself, presumptive evidence of perturbed uterine function more or less severe and persistent.

Before proceeding to point out the nervous relationship between the uterus and the oral cavity, it would seem pertinent to examine briefly the generally accepted theory in explanation of certain abnormal states of the organs of the mouth associated with gestation.

The prevailing view, I believe, is that the tendency to more rapid decay of the teeth characterizing this period is due to the

increased consumption of lime salts incident to foetal growth and development, and that this superadded draft upon the calcific elements of the maternal circulation, by diverting the lime salts ordinarily appropriated by the teeth in the processes of repair, induces a nutritive lesion characterized by deficiency of ossific deposits, and consequent structural impairment—a condition rightly supposed to favor accelerated decay.

This theory would seem to be predicated on the assumption that the bone-producing elements of the ingesta are, in the unimpregnated state, largely if not wholly appropriated by the tissues into which they enter as a component—that there is not, ordinarily, any adequate excess to meet the exigency under consideration, and that when such exigency occurs, it becomes, as between the necessities of mother and child, a simple question of *divide*.

Now, aside from comparatively infrequent cases of tissue starvation consequent on pronounced deficiency of the bone-producing elements in the food, it would seem reasonable to suppose that there is, ordinarily, a prevailing excess of calcific matter in the maternal circulation adequate for all the contingent needs of both mother and offspring. If this were not so—if, in the unimpregnated state, there were but a simple sufficiency without excess, the foetus would suffer in common with the mother, and we should expect, whenever the demand for increased supply occurred, to find, not only structural impairment of the mother's teeth during the gestative period, but, as the result of imperfect ossific deposits during the period of foetal evolution, osteological malformations a common characteristic and a common inheritance of the human race—conditions, the existence of which has no warrant in facts or observation.

If this theory of diversion, or robbing Peter to pay Paul, is, as I believe it to be, neither rational nor in accordance with any just interpretation of the laws of nutrition, neither is it acceptable in explanation of other phenomena associated with utero-gestation. It does not account for the distressing and oftentimes violent pains associated with teeth but slightly decayed, and often with those of unbroken structure, nor does it in any manner explain the presence of the various neuralgic affections of neighboring parts coincident with impregnation.

We must look further, then, for some more rational solution

of the problem of causation as it relates to the sympathetic oral phenomena associated with the reproductive processes.

A more plausible and defensible theory, I believe, would assign to these phenomena the character of reflex lesions, functional or structural. To justify this conclusion, I shall first endeavor to ascertain if the organs of the mouth constitute an area correlated to the uterus through the medium of the sympathetic system of nerves, and then consider in what manner the vaso-motor fibres of that system operate as factors in the production of the oral phenomena which I have characterized as reflex lesions.

It is important to remember in this connection the essential fact now broadly recognized by modern physiologists, namely, that the vaso-motor fibres of the great sympathetic system of nerves are largely distributed to the blood vessels, and that their peculiar and distinctive office is to control and regulate the caliber of the vessels to which they are distributed, and consequently the blood-supply to any given part.

Bearing this central fact in mind, the next inquiry is, do the teeth constitute an area correlated to the uterus through the medium of the sympathetic system? The relationship is, I think, sufficiently obvious, and may be traced as follows: The blood-supply to the teeth is derived from the external carotid through its branches, the inferior dental, and alveolar branch of the internal maxillary arteries. The vaso-motor nerves controlling the caliber or tonicity of these vessels are derived immediately from the external carotid plexus of the sympathetic—a plexus derived from the superior cervical ganglion of the spinal sympathetic.

The uterus and its appendages and vaginal walls are supplied with nerves from the pelvic plexus of the sympathetic, bringing these several parts into immediate relation with the spinal sympathetic system.

Thus it will be seen that any tissue impression having its source in the uterus or associated structures would be transmitted by way of the afferent vaso-motor fibres to the vaso-motor centre in the medulla, and, returning by the efferent fibres in reflex relationship with the former, would reach the carotid plexus through the superior cervical ganglion. As the branches of the external carotid artery, to which this plexus is distributed, supply the teeth with blood vessels, it is not difficult to see how

the teeth of the superior and inferior maxilla become an area correlated to the uterus through the medium of the carotid plexus of the sympathetic system.

The correctness of this view of the relationship of the regions under consideration being granted, it only remains to ascertain how, through the action of the vaso-motor nerves, nutritive lesions or reflex functional disturbance in connection with the teeth may occur as a sequence of irritation having its origin in the uterus, its appendages, or vaginal walls.

Dr. Charles H. Burnett, commenting on reflex diseases of the ear, says: "It may be stated in a general way that *the effect of any irritation in a vaso-motor nerve-tract may be to excite vessel-dilatation through diminished inhibitory nerve-power, in a correlated area,*" while Dr. Woakes, of London, affirms the fact of dilatation of the vessels as a constant condition following reflex irritations.

Accepting this statement as an ascertained physiological fact, we should have, as the result of any irritation having its source in the gravid uterus or its associated parts, impaired tonicity of the pulp-vessels, manifesting itself in dilatation and consequent congestion or hyperæmia. If the disturbance in the pelvic region were such only as to produce but slight irritation, the reflex lesion of the pulp would manifest itself as a so-called sympathetic neuralgia consequent on pressure of nerve fibres by the engorged and distended blood-vessels. Sympathetic tooth-ache, manifesting itself in teeth of sound as well as unsound structure, is very commonly associated with pregnancy, and cannot be rationally accounted for, I apprehend, except in the manner here indicated. Ordinarily, the exciting cause would be insufficient to induce more than functional disturbance in the pulp, but it is easy to conceive how such reflex irritations of sufficient intensity and persistence might provoke blood-stasis, inflammation, and disorganization or death of the pulp.

Let us next apply the conclusions of this paper in explanation of the phenomena of softening and more rapid decay of the teeth during the period of gestation. The lesion is, I think, clearly a reflex one. Anything like prolonged hyperæmia of the vessels of the pulp, must, by altering or diminishing the blood-supply, seriously interfere with the nutritive processes concerned in the reparation of wasting tissues. The consequence of such interfer-

ence with the normal functions of the pulp, in so far as its vessels are concerned in the nutrition of the tooth, would be in the direction of degeneracy or retrograde metamorphosis of tooth structure. This would imply, we may suppose, defective assimilation of ossific pabulum for purposes of repair, and certainly diminished vital resistance to the action of agents operative in producing solution of the lime salts. We should have, consequently, from the operation of these causes, a tendency to general softening, with hypersensitiveness, and a greatly increased rapidity of decay. These are frequent coincident complications of pregnancy, are always more or less distressing, and often involve the loss of valuable organs. The subject is, therefore, one of great interest to us as oral specialists.

Whether the views here advanced as to the cause and nature of these lesions are correct or not, they are submitted to the candid and impartial criticism of the profession.

A NEW PHASE OF THE AMALGAM QUESTION.

BY MELVILLE C. KEITH, M. D.

[Continued from page 418.]

LEST, however, there remain those who are not convinced of an electrical current being formed by the combination of an amalgam filling and an acid in the mouth, and possibly those who are yet ready to assert that, "with regard to electricity but little is to be said," (*vide* page 409), and, possibly, because the editor of the OHIO STATE JOURNAL OF DENTAL SCIENCE acknowledged (page 187, Vol. I) that he had not read *J. Foster Flaggy's Plastics and Plastic Filling*, but mainly for the reason that the writer believes it is not so much the fault of dentists, that amalgam is so commonly used, as the ignorance of the people, who have been taught that "amalgam is as good as gold and much cheaper," or that (page 23, *Plastic Filling*) "in proportion as teeth need saving gold is the worst material to use;" and also because *there does not appear to be any authority (Wedl's Pathology is excepted) for the intimate relation between a well-preserved tooth and good hearing and unimpaired eyesight*; and finally because the writer is indebted to the

labors of an eminent member of the dental profession, now living, it is not deemed inappropriate to adduce some other evidence in support of the facts already asserted.

Tome's Dental Surgery, second edition, page 338, reads: "So far as I am aware, no serviceable amalgam which does not contract as it hardens has yet been produced; not only do they contract, but they often undergo considerable changes in form as they harden." (Page 339.) "It is easy to see that this may lead to a vacancy round the edges in two ways, by the absorption of the free mercury back into the contiguous portions of the plug, or by its gradual evaporation."

This acknowledgment is from eminent dental authority who has *filled his own wisdom teeth* with amalgam (see pp. 333 and 334), and we may certainly decide that he was in a measure friendly to amalgams. It is proper to state that *his* amalgam is "precipitated palladium and mercury" (*vide* page 335), and that the majority of American amalgams are composed of copper, tin, platinum, gold, zinc, and cadmium, with mercury. (Plastic Filling, page 40 *et seq.*)

If a statement from so high an authority as *Tome's Dental Surgery* can be relied on, there is an opportunity for the buccal juices, acid or otherwise, to reach the entire cavity. If these juices or fluids contain acid, which we think no one can deny, *the conditions of an electrical current are already present with every amalgam filling.* Taft's *Operative Dentistry*, page 95, third edition, reads: (The italics are mine.) "To such objections against this material, another is to be added in cases in which there are fillings, or plate of platinum or gold: *galvanic action will be established in a degree proportionate to the proximity and extent of surface and the conditions of the secretions.*"

It may be urged that this evidence is from a writer prejudiced against amalgam and is inadmissible. We shall not stop to quote outsiders on this matter further, but go to the amalgam American headquarters for assistance.

Plastic Filling, edited by J. Foster Flagg, D. D. S., edition of 1881, page 110, states under the head of General Considerations: (Flagg's italics.) "Another local effect is the occasional *induction of galvanic electricity by contact with other metal.* This is most usually developed when such contact is made by touching fillings with pins, needles, metallic tooth-picks or forks, either

steel or silver, and the results vary in degree from merely making a peculiar taste, galvanic, through the entire range of sensation from disagreeable to intensely painful — a shock."

Please observe also that this was published in 1881, and now, 1882, there are writers who assert (page 409 of OHIO JOURNAL) that "conditions of fillings are unsuited for electrical or galvanic development." The writer of this article will also quote for these parties who are wedded to amalgam, the following from *Plastics*, page 62, and we quote especially for the benefit of amalgam dentists: "Even with this periodic dissemination of instruction, the making of alloy seems to have been undertaken by but few practitioners: no education in regard to it has been given in most of the colleges, *and not one graduate in a hundred has any definite idea* either of the components, the proportions, or the properties of the materials he purchases for the filling of teeth, other than as given him upon the printed envelope or the paper of 'directions.'" And all this notwithstanding the time-honored "annual announcements" from "*chairs of dental metallurgy*." (The italics are mine.) The book is for sale by Ransom & Randolph, Toledo, Ohio.

If there is not food for reflection in the acknowledgment of an honorable gentleman who reads the ecloga quarta of Virgil in the original (oh, my! what have we done to have *that* hurled at us?) and who has asserted that in regard to electricity "but little is to be said," we will stop to read page 111 of *Plastics and Plastic Filling*, and we shall find brother Flagg saying: "This effect (induction of galvanic electricity) is *QUITE LIABLE to be produced* from contact with the clasps or plate of artificial dentures, gold, and is sometimes, though rarely, difficult of prevention."

We should like to quote some Latin here, but we haven't the time really, since brother J. Foster Flagg hurries on to tell us that after we have made the "effort" for the "removal of brightness," we should, "*as a final resort*, if 'clasping' *is a necessity* or a *very great comfort*, proceed to the devitalization of the pulp of the clasp tooth." The writer of this may be a "young and inexperienced man," but J. Foster Flagg is a "veteran," and he says "galvanic electricity;" and he goes right on saying it: "In mouths where this galvano-electric effect is very decided, it will occasionally be noted that the contact of small pieces of amalgam with gold fillings will produce a like effect." And still that "old

thinker and investigator," Dr. Flagg, writes along without possibly a thought of the "inexperienced" Nebraska friend, "tickled at his ability to pound gold into a cavity," and says, page 112: "A third effect is like unto this second, but is occasioned from the fact that a *filling of different metal having marked difference of potentiality* (usually gold) is so inserted, disconnected, not touching, into the same tooth or an adjoining tooth as to be occasionally connected by tongue, lip or cheek connection. Whenever this connection is made, usually during mastication, a shock of sufficient severity to cause pain and starting is felt."

Now who is talking about electricity? The "young inexperienced" dentist, unfortunate in living in Nebraska. "Gush is an evidence of inexperience," but it does not appear the "inexperience" is on Nebraska, a State, mind you, that we are not ashamed of, but on our Eastern doubting Thomas, who "has never seen any indication of electricity." We should be unjust to Dr. Flagg if we neglected to quote his conclusion regarding the cause of this electricity. He says, page 112: "I should, of course, advocate the removal of the gold filling, and its replacement either with tin, gutta-percha or amalgam," and this is advocated by a "veteran" in the new departure corps! *advocates the removal of a gold filling to be replaced by amalgam because of "galvanic electricity."*

We will weary the readers with but one other quotation, but the work from which we copy is written by the President of the Quiz Association of the Philadelphia Dental College, Wm. C. Foulks, D. D. S., published in this year of grace, 1882, and possibly was given to the "inexperienced" who "cannot contain" ourselves because we can "pound into a cavity a little gold and make it shine." Here is the edification, from page 27, Questions and Answers on Dental Pathology:

"What is the action taught of two unlike metal fillings?"

Answer.—"When touching, galvanic action is prevented, the dentine preserved, and a favorable condition of the oral fluids maintained; if not in actual contact a shock may be caused when the different metals are connected by the tongue, cheek or saliva. This usually occurs during mastication and varies in intensity."

"What is taught of the union of amalgam and gold plate?"

Ans.—"From the gentle, continuous and stimulating galvanic action which is exerted, a beneficial effect is produced upon

the mouth and even upon general health." Comments reserved.

We will now resume our investigations on the maxillary nerves. For our purpose it is sufficiently accurate to state, that the fifth pair arises on the anterior part of the side of the *pons varolii*, divides, after leaving the gasserian ganglion, into ophthalmic, superior and inferior maxillary nerves. The dental nerves are branches, and hence we have from a galvanic *current continuous* transmission *from the pulp cavity to the pons varolii*, and as a consequence the *galvanic* current may be transmitted from the pulp directly to the base of the brain.

How much of this current or shock is "stored up" in the ganglion of gasser we are unable to answer. But that the gasserian ganglion is a place of reception for impressions, which would include "currents," "shocks," "starts," etc., we may correctly infer. Professor Draper asserts that "cephalic ganglia are places of reception of the impressions on the organs of special sense." (Page 607, Human Physiology.) In short, the galvanic current generated by the amalgam filling is readily transmitted through the dentine cells, or through the dentine tubule, "tenanted by a soft fibre" (Wedl, page 44) to the pulp chamber, thence through the dental to the maxillary, gasserian ganglion, and pons varolii, making a direct current from the amalgam filling to the base of the brain.

[To be continued.]

GOLD FILLINGS—THE NEW METHOD, AGAIN.

BY A. A. BLOUNT, M. D., D. D. S., GENEVA, SWITZERLAND.

PERMIT me through your valuable journal to make a few statements in regard to my method of manipulating "so-called" soft and cohesive gold. As Dr. C. R. Butler has "strongly criticized" the method, I beg the privilege of replying through this medium. From a careful perusal of the remarks of the Doctor before the Northern Ohio Dental Association, as published in your journal, I am sure he has entirely misconstrued the ideas I endeavored to convey.

I reiterate, that placing soft, or unannealed gold against the walls and borders of a cavity, and covering it with cohesive gold, packing against the walls and borders with "smooth oval pointed

instruments," with *light* blows of the mallet, is the only true and rational method of filling a tooth with gold, and I venture the assertion that the day will come, when men much more intelligent than either Dr. Butler or myself, will promulgate and teach that method.

I do not set myself up as a teacher, but merely give to the profession a method entirely "new and original," *i. e., lining cavities with soft and cohesive gold before filling them.* I practiced dentistry before the Doctor was born, and have tried to keep pace with everything new and useful in the profession, and must confess that the statement that my ideas were "old and exploded theories, which, in the hands of the most skillful operators had been abandoned as total failures," was a surprise to me. Now, to what does the Doctor allude? To smooth oval points? I have used them for twenty years or more, and never fill a tooth with gold without them. There are but few dentists in the profession who understand the proper method of manipulating gold with smooth points; if they did, they would never abandon them, as the results obtained by packing gold with a smooth, oval pointed instrument, *cannot* be surpassed by any other. If the Doctor alludes to the idea of intervening soft foil between cohesive foil and the walls and borders of the cavity, I should be still more surprised, as every intelligent dentist will readily admit the fact, that soft gold will make as perfect union with the walls and borders of the cavity as can be produced by gold and tooth substance.

I will describe my present method of manipulating in as few words as possible:

The most important part of the operation of filling a tooth, in my judgment, is the *preparation of the cavity.* Introducing the gold is a simple and easy matter, if the cavity is properly prepared to receive it. We will take, for example, an approximal cavity; cut the cervical border as *flat* and *level* as it is possible to make it, inclining a little towards the tooth, the lateral walls perpendicular and slightly dovetailed, terminating in acute angles with the cervical wall, which answers for retaining points, the back of the cavity flat. To fill this cavity, place a sufficient quantity of soft, or unannealed gold upon the cervical wall to completely cover it, and serve as a cushion, on which lay the cohesive, condensing well into the *angles*; cover the whole sur-

face with cohesive foil till it is securely anchored. Now, with a smooth point and *light* taps of the mallet, condense well over the border, cut away the surplus gold, and that part of the filling is finished. Place a pellet of soft foil against the lateral wall, *overlap* this with a pellet of cohesive—tacked on to the foundation already laid—another pellet of soft, overlapped by another pellet of cohesive, and so on till the side walls are covered; place a pellet of soft foil, large enough to cover the back of the cavity, condensing lightly by hand pressure, secure this by cohesive foil packed into the angles formed by the lateral walls with the back, with a smooth point condense down on to, and slightly overlap the borders, and the operation of lining is completed, and ready for the superstructure whatever it may be. Many beautiful operations may be made by fitting a piece of an artificial tooth, so as to hide the rim of gold, cemented in by any of the plastic cements, without any apprehension on the part of the operator, of the washing away of the cement, and subsequent decay of the borders.

REMARKS ON CONSTITUTIONAL TREATMENT.

BY POLYTES.

IF a dentist is at a loss with “Constitutional Treatment” he may be forgiven, because the colleges, as they are, only intend to give the “Doctor” for a certain consideration of money, without being able to give a medical education in three or four months.

The student will hear from thirty to forty lectures on physiology, as many on dental pathology—*none* on general pathology; the word nosology is hardly heard within the walls of a dental college. And suppose the student *could* master, besides anatomy and surgery, all the studies of medicine, enabling him to go at a “constitutional treatment,” whence should he take the remedies? Certainly not from the thirty or forty lectures on chemistry and *materia medica*! A dental student is precious glad if he succeeds in mastering the astringents, disinfectants and styptics.

I do not intend to blame a single college. I sincerely believe that every one of them tries hard to impart as much knowledge as possible; but the course of three or four months is *too short*,—the course should, without any exception, be *at least* two sessions.

And even then, not much will be attained, unless a good preliminary education is demanded of the students. I have met with wondrous ignorance in college. One student, an elderly gentleman, prescribed permanganate of potassium, instead of permanganate, as a *mouthwash*, and quite a number of my colleagues spelled pus with ss!

For lack of general education the dental colleges of course are not more to be blamed than certain medical colleges. We find among the M. D.'s just as many ignorants as in our ranks. Not long ago I crossed a *materia medica* of a certain Homœopathist. Finding himself rusty on Latin, he applied to a profound Latin scholar—as he states in the preface—to eradicate the blunders. This profound scholar writes: “Tinctura arnicæ e flores!” There are many more such blunders in said *materia medica*.

An M. D., a great head light in the dental profession, is reported in the *Dental Cosmos* for 1874, page 665, to have said, on the question, “How shall we get our education?”: Education is composed of the Greek preposition E “out of” and the Latin verb “duco.” Hence he calls the word education a hybrid, a Greek-Latin mule that we are riding.

Hundreds of ears listened to this glorious nonsense! All the editors of the dental papers passed this nonsense uncensored; thousands of dentists read it; and perhaps some assiduous student enriched his stock of knowledge with this rare specimen of etymology.

A physician, as well as a dentist, being desirous of becoming a doctor, should take care himself to be *doctus*, a learned man.

The word Doctor is a product of the twelfth century, when it was originated at Bologne as a title for those who were allowed to teach at universities, and ran in full Doctor artium liberalium. The emperors of that date gave the universities permission to create *Doctores legum*, Doctors of Law. The Roman church, finding that besides the secular law, there was an ecclesiastical law, granted the privilege of teaching the same, and creating the title of *Doctor canonum et decretalium*. These two laws then, in course of time, were combined, and the title ran *Doctor utriusque juris*. Paris created, 1231, the first *Doctor theologie*. The doctors of medicine first were called *Doctores chirurgiæ et physices*.

The original idea of *Doctor* is not to imply the meaning of "physician," but "teacher;" a doctor is a scholar who is authorized to teach at universities and colleges "publicly,"—to make others *docti*, *i. e.*, learned men.

In Germany no physician is any more required to graduate; he has to pass an examination with the board of the government. An "M. D." who has not passed this government examination neither is entitled to collect fees, nor to give a professional opinion before court—he ranks with the quacks.

There are a great many physicians in Germany who are not "M. D.'s!" The graduation is nothing but a farce, the means of procuring money for the members of the faculty, and giving permission to the graduate to call himself Doctor.

It is this sweet sound which is coveted. What are those poor fellows to do who do not have the means in their pocket to purchase the same? All they need in a country where every barkeeper is "captain," and every sport a "colonel," to display enough cheek and assume the title, till sued for. Nobody takes the trouble to investigate about a title in this country. In a city of more than 125,000 inhabitants, quite a number of ignorants, frauds and quacks, are acknowledged by the board of health as practicing physicians. These fellows have the Doctor on their cards, signs,—and advertise as such.

A dentist who hardly has seen the outside of a college, certainly never has taken a peep at the inside of one,—introduced himself to me as Doctor N. N. I knew his character and asked where he had graduated, and received as reply: "Never mind that—that's fashion in the West, we all call ourselves Doctors; it sounds better!" I was present at a meeting of a Dental Society where there were a couple of graduates, the balance being made up of some old, worthy men, some of them dentists by profession, some machinists,—some young men, former barbers, clerks, etc., but everybody was a *Doctor*,—nothing but a Doctor.

This doctoromany is a constitutional ailment of our ranks. In my opinion the D. D. S. is more than an oxymoron and should be given, and received as little as a degree Doctor of Eye Surgery and Doctor of Foot Surgery. Let all of them become M. D.'s, and then call themselves Dr. Jones, Dentist: Dr. Jones, Oculist; Dr. Jones, Chiropodist. But! Let *none* of them be

admitted to study medicine before he has passed an examination as A. B. Let the A. B. (Bachelor of Arts) be a *conditio sine qua non* for the C. (candidate) before he attains the D. (doctor.) If everybody would have passed through the A. B. C. to the D., you surely would not hear of any one going to the drug store for a bottle of "Constitutional Treatment."

IS THIS A NEW IDEA?

BY L. G. NOEL, M. D., D. D. S., NASHVILLE, TENN.

BULWER says, "Often an idea perks itself up and seems to say, 'Look at me! I am perfectly new. I am an *original* idea. You never saw me before!' But upon turning it round, and examining it upon all sides, I say 'No! you are not new, neither are you original; I recognize you as a very old acquaintance.'" For some time it had been my practice, in some deep, compound cavities, where the teeth were frail and the decay extended high up on the neck of the tooth and under the gum, to fill at the gingival border with Hill's Stopping, or some other good preparation of gutta percha, all that portion of the tooth through which thermal changes are liable to be conveyed to the pulp, and leaving the coronal or grinding surface portion to be finished with amalgam, thus getting the non-conducting property of the gutta percha where it is so much needed, and protecting it from friction and attrition in mastication, by the hard amalgam. I liked this combination so well that I called my associate's attention to it, and he was delighted. Here was a permanent, non-conducting filling, easily and quickly inserted, promising durability and usefulness. Oh, what distress these cavities had given us! How we had filled with cement, to find in a few weeks our cement melted out like so much snow by the acid mucus of the gums, and how we had stuffed them with gutta percha to wear out in mastication—all looking to the time when we could venture to fill with gold. The combination came like an answer to prayer, and it was none the less good because all the while Dr. Quimby, of Liverpool, was using it, and because he had the honor to set it forth in his essay read before the New York Odontological Society, and published in the *Cosmos* for April, '82. We read it aloud to our associate,

and remarked with a sigh, "We had intended to publish it, but now—." Dr. Quimby did not mention the combination of gutta percha and gold for similar cases. Absurd as it may seem to some of your readers, we are using it, *and it is a good thing*. At first blush it would appear that the gutta percha is too soft and yielding for a foundation to build gold upon, but it can be done. I manage it in this way: After adjusting my rubber dam, if I have two of these cavities in adjacent teeth I, fill the bases of both together, carrying the gutta percha across in continuous blocks from one to the other, until I have filled as much of the cavities as I desire to cover with gutta percha; then with cylinders of Abbey's old-fashioned non-cohesive gold, I get a basis for my cohesive foil, with which I finish and secure the whole. After dressing down the gold, I pass the thin blade of a burnisher, shaped like an ordinary gum lance and heated in a spirit lamp, between the teeth, separating the gutta percha and burnishing it well into its place. If there is but one tooth, the gutta percha may be packed well over the septum, and allowed to project against the adjacent tooth; the condensation of the soft gold upon it will merely serve to settle it, and spread it well against the walls. The tendency to slip and mash out of the cavity is so slight, that it may be controlled in isolated teeth by grooving the cavity, as for non-cohesive gold. Doubtless others have been using this method; it may not be a new idea, but it appears so to me now.

Editor's Specials.

"Write the Vision and make it plain."

AMERICAN DENTAL ASSOCIATION.

TWENTY-SECOND ANNUAL MEETING.

IN this notice of the doings of the Association, and the sayings of its members, it is not proposed to give a formal or full report of the discussions. The paper is likely to be quite a mixture—one place the statement of a member, or our own statement of his opinion, followed by our own remarks in reference to it,

commending or condemning, as the case may be—again, an extract from a paper or the narration of an incident of interest to the reader; and so we are likely to give you in these pages, something unlike anything you have seen before—a cross, perhaps, between an editor's special and a report of discussions. And if the reader regards it as too much of a medley, we can make him better understand our idea, if, in the late war, he ever reached the regions visited by Turchin's brigade, by saying, "*Here's your mule!*"

The Association began its twenty-second annual session on Tuesday, August 1st, 1882. The President, Dr. H. A. Smith, of Cincinnati, took the chair about the appointed hour and called the meeting to order, and on his request, Dr. W. H. Morgan, of Nashville, Tenn., a professor in Vanderbilt University, opened the meeting with prayer. It was appropriate to have prayer to our Heavenly Father, as we are divinely told, "In all thy ways acknowledge Him, and He shall direct thy steps;" and the prayer was appropriate, inasmuch as it recognized our own absolute helplessness, as well as the source of all strength and power, and the hope of the race through the mediator of the better covenant.

The Recording Secretary, Dr. Geo. H. Cushing, of Chicago, was in his place, and the members of the Executive Committee were generally, if not all, present.

The roll was called and the following permanent members and delegates were found to be present at the opening of the session; others, of both classes, arriving at intervals throughout the meeting:

From Mississippi Valley Association: Otto Arnold, W. D. Kempton, J. R. Callahan; Ohio State Dental Society: E. G. Betty, J. H. Boger, Ira Brown, C. H. James, I. Williams, C. J. Keely, W. P. Horton, George Watt; Pennsylvania State Dental Society: C. A. Pierce, E. T. Darby; Illinois State Dental Society: A. W. Harlan, G. H. Cushing, J. M. Hurtt, Jos. W. Cormany, K. B. Davis; Washington City Dental Association: W. W. Evans; New Orleans Odontological Society: George J. Friedrichs; Pennsylvania Association of Dental Surgeons: W. H. Truman, T. L. Buckingham; Indiana State Dental Association: S. B. Brown, P. G. C. Hunt; Michigan State Dental Association: J. A. Robinson, Geo. R. Thomas, E. C. Moore, W. H. Dorrance; Northern Ohio Dental Association: T. C. Leiter, Frank Waldron, J. G.

Templeton, Gale French; Cincinnati Dental Association: C. M. Wright, A. G. Rose, G. W. Smith, O. V. Heise; Missouri Dental College: W. H. Eames; Chicago Dental Society: J. N. Crouse; Detroit Dental Association: Henry Cowie; Odontological Society of Western Pennsylvania: H. W. Arthur; St. Louis Dental Society: W. N. Morrison, John G. Harper; Wisconsin State Dental Association: A. H. Fuller, Geo. L. Shepard; W. H. Atkinson, New York; W. H. Morgan, Nashville; H. J. McKellops, St. Louis; George W. Keely, Oxford, O.; W. C. Barrett, Buffalo, N. Y.; F. H. Rehwinkel, Chillicothe, O.; L. D. Shepard, Boston; H. A. Smith, Cincinnati; W. H. Funderburg, Pittsburgh Dental Association; Wisconsin State Dental Society: W. C. Wendel, B. G. Marklein; Iowa State Dental Society: S. A. Garber; D. J. Pollock, Sterling, Ill.; Indiana State Dental Association: G. F. Nevius. Besides these a number of visitors were present, some of them dentists, some physicians, and some laymen, not to mention the ladies who occasionally encouraged the meetings by their presence and smiles.

It is very common, at ordinary dental meetings, to invite physicians and dentists present to take part in the discussions of the professional subjects on the programme. Something of this kind was proposed in the Association years ago, and it was objected that this being a delegate body, it had not the power to grant the privileges of the floor to non-members, and the matter was dropped. We do not know if it ever came up again in a formal manner; but at this meeting two men of reputed science, were granted such privilege, which we were glad to see; and we would have been glad to see it generally extended, as others were present whose attainments and reputation were fully equal to those of the parties invited. The objection that the Association is a delegate body will not hold, for it has its permanent membership from which its officers must be selected. We presume there has been a formal change from the old policy, as we are told that last year a party, not a member, and not even a dentist, read one of the section reports, at least in part. And, so, though we regard our presence at future meetings as somewhat improbable, we shall be glad to hear that the courtesy of the floor is extended to all reputable physicians and dentists present.

On behalf of the local societies and the reception committee, Dr. A. Berry, of Cincinnati, delivered an eloquent address of

welcome. As the speech rather eulogized Cincinnati, which was the home of the President, Dr. W. C. Barrett, Vice-President, responded on request of the President. For a synopsis of Dr. Berry's address see September number. That of Dr. Barrett we failed to get, as we had not then learned to report him. He said the members of the Association were all familiar with the energy, enterprise and greatness of Cincinnati; and while duly appreciating and admiring all these, they had come together for something quite different in nature—for the purpose of welcoming and warming each other's hearts in the interests of humanity through the channel of dental science. Nor did the members come as strangers; for everywhere a feeling of universal brotherhood among men of intelligence is manifested while engaged in the energetic and honest pursuit of truth.

The Committee on Credentials reported, announcing that there would be supplementary reports, as further credentials were presented and acted on.

The Committee on Publication reported, explained the delay in getting out the Transactions, as usual, no one to be blamed, and suggested modes of meeting some of the difficulties in such way that the succeeding committee would be able to secure greater promptness.

Prof. W. H. Morgan rose for information. He would ask through the chair as to the degree of liberty taken by the committee in revising the reports of discussions, and the degree tolerated by the committee when reports of remarks were submitted to the parties making them. We fear he got but little information, as we got none, though attentively listening. He went on to state that in a past, or late volume of the Transactions, somewhat lengthy remarks, to which he and Prof. Taft had replied, were totally suppressed, which made the criticisms of himself and Prof. T. read like nonsense. He did not regard this as legitimate revision or fair dealing.

Drs. Crouse, Pierce and Shepard were appointed a committee on the death of Dr. M. S. Dean, and the Recording Secretary was instructed to express by telegraph the sympathy of the Association with Dr. M. H. Webb, of Lancaster, Pennsylvania, in his long and sore affliction, with expression of our hopes for his rapid recovery.

Drs. George L. Field, J. Taft and Buckingham were appointed a committee on the death of Dr. Hawxhurst.

The amendment to the constitution proposed last year by Dr. Shepard, giving ten of the fifteen officers authority to change the time and place of the meeting of the Association, in emergencies, was adopted.

The report of the Executive Committee was received and adopted, and is as follows:

DAILY SESSIONS.

From 9 A. M. until 12:30 P. M., and from 2 P. M. until 5:30 P. M. No evening sessions.

SPECIAL ORDER FOR TUESDAY MORNING.

8:30 A. M.—Meeting of the Executive Committee and the Treasurer; the former for examination of the certificates of delegates, reception of voluntary essays, etc., and the latter to receive the dues of members.

N. B.—It is important that the delegates present their credentials and that members pay their dues before 10 A. M. so far as possible.

10 A. M.—Meeting of sections.

11 A. M.—The Association will be called to order.

SPECIAL ORDER FOR THURSDAY AT 2 P. M.

1.—Selection of place for next annual meeting.

2.—Election of officers.

3.—Organization of sections.

REPORTS OF SECTIONS AND DISCUSSIONS THEREON WILL OCCUR IN THE FOLLOWING ORDER:

SECTION. 4.—Operative Dentistry. E. T. Darby, Chairman.

SEC. 5.—Anatomy, Histology and Microscopy. G. V. Black, Chairman.

SEC. 6.—Pathology, Therapeutics, and Materia Medica. F. M. Odell, Chairman.

SEC. 7.—Physiology and Etiology. W. C. Barrett, Chairman.

SEC. 1.—Artificial Dentistry, Metallurgy and Chemistry. C. S. Stockton, Chairman.

SEC. 2.—Dental Education. J. N. Crouse, Chairman.

SEC. 3.—Dental Literature and Nomenclature. W. H. Atkinson, Chairman.

An afterthought suggests that the names of the officers may interest members of the profession who were not present. The list for this meeting is as follows :

President, H. A. Smith, Cincinnati, O.

First Vice President, C. W. Barrett, Buffalo, N. Y.

Second Vice President, Geo. J. Friedrichs, New Orleans, La.

Recording Secretary, Geo. H. Cushing, Chicago, Ill.

Corresponding Secretary, A. M. Dudley, Salem, Mass.

Treasurer, W. H. Goddard, Louisville, Ky.

EXECUTIVE COMMITTEE.

J. N. Crouse, Chairman. C. S. Stockton, Secretary.

First Division—Committee of Arrangements, C. D. Cook, F. M. Odell, T. T. Moore.

Second Division—Credentials, Ethics and Auditing, J. N. Crouse, C. S. Stockton, S. G. Perry.

Third Division—Voluntary Essays, C. N. Pierce, W. H. Morgan, F. H. Rehwinkel.

At 12:30 the Association adjourned for dinner, and re-assembled at 2:30 p. m. and was called to order, and the minutes of the morning session were read and approved. Many additional delegates and other members of the profession had arrived. The President, Dr. H. A. Smith, read an inaugural address. He alluded to the fact that the Association had reached its majority—was aged twenty-one—and therefore vigorous, yet deliberate work is expected from it. It is expected that it shall manifest the energy of young manhood, combined with the steadiness of mature years. For eighteen years the work of the Association had been mainly done through standing committees appointed annually, and many very valuable papers and documents had been put before the profession through these. Now, and for some years past, the work is and has been done by sections. Members of the Association place themselves upon the sections with which they prefer to work, or if they fail to select positions for themselves they are placed where it is supposed they can be of use. The sections organize themselves, each selecting a Chairman and Secretary. The reports of the sections and the volun-

teer papers accompanying them, since 1878, have been very valuable and interesting, and each year seems to be an improvement on its predecessors. The members of a section are likely to become familiar with the subjects assigned to it, and they, especially the Chairman, feel a responsibility in regard to their investigation not likely to be felt under the old regime, in which a large majority of the members were unassigned to any special or specific duty.

In view of the great benefits and the grand and useful results achieved by the Association in the years of its minority, we may appropriately think of the great good we can do and press forward accordingly, reaching forth to those things which are before, pressing toward the mark for the prize of the high calling that is to be awarded the victors in the pursuit of professional science.

But with all the bright prospects before us we have sad reminiscences. It has been said, that death loves to aim at a shining mark. He said the Association had familiar illustration of the fact. During the past year they had to record the death of one of their most valued associates—M. S. Dean. His death might not, perhaps, be regarded as an irreparable loss, yet when they remembered his genial, plain and generous nature, his cheerful and animated conversation, the variety of his attainments, the extent and accuracy of his professional knowledge, coupled, as it was, with the modest self-estimate and humility of mind so characteristic of him, when they referred to the valuable contributions from him which graced the pages of their transactions, and added to the bulk of their real knowledge, recalling the great love which he bore for the Association, as manifested in the ever watchful guardianship of its interests, whether a humble worker in its body or its honored President, surely the place in their Association made vacant by the death of Dr. Dean would be a difficult one to fill.

In his address last year the President had called attention to the fact that etiology—the science of the causes of dental caries—had been almost wholly neglected by essayists who had contributed to the proceedings of the Association, and suggested to the section embracing etiology that a committee be appointed for the object of making a careful, systematic study of the causes which contribute to the existence of dental caries. When it was

considered that much the larger proportion of their time spent in actual practice was occupied in the treatment of lesions caused by the almost universally prevalent disease, which was denominated dental caries, and that notwithstanding the subject had been extensively studied, the fact confronted them that the efficient cause of dental caries was still a matter for speculation, it was noteworthy, as well as encouraging, that the subject received so large a share of attention before the section devoted to the consideration of diseases of the teeth at the International Medical Congress, held in London last year. With the view of stimulating investigation in this direction, he would respectfully suggest that the Association offer a prize to members, of not less than \$200, for the best paper based strictly upon original investigation relating to the etiology of dental caries, the award to be made and announced at the annual meeting in 1884. If there was any deficiency in the treasury for that purpose, it might be met by an increase in the annual membership fee, or the whole amount may be made up by voluntary subscription of the members.

Whether dentistry should be taught in special colleges or in a regular university course with other studies was a matter that might safely be left to time, the great arbiter of all things.

The printed volumes of our Transactions, he said, would show that dental education had received its full share of attention. In defining its terms of membership, it had been claimed by some that the Association had attempted to dictate to dental colleges what should be their courses and terms of study. Some of the colleges seemed to take this as not friendly, but he believed a majority had different feelings. It was well, perhaps, said he, to be at least prudent. Something might be learned from the example of the old American Dental Society, that prescription must not be carried to the extent of proscription.

After the close of this address, the President called for the reports of Sections. They were called in the order arranged by the Executive Committee, which left Section 3 to the last. Each Chairman announced his section as not quite ready till the last one was called, which was Section 3, Dental Literature and Nomenclature, Dr. W. H. Atkinson, Chairman. Dr. A. was ready and proceeded to read a report, which he said was a continuation of the same train of thought set forth in his various reports during the past four years. In this report he would simply explain two

words and their derivatives. These words were "bauski" and "vauski." In general the members listened with respectful attention, in view of the fact that not one of them understood a sentence read, yet the doctor felt that his paper was slighted, and gave the members a short, sharp lecture for their treatment of it; and, as he closed, he expressed a hope and belief that the time will come when not a dog will dare to wag his tongue against the light of God's elect truth as thus presented.

The paper created a lively discussion. Dr. Friedrichs, of New Orleans, asked how it is possible for every tone of the human voice to correspond with a tissue of the body? He regarded this as impossible, and against all recognized authority. The human voice, said he, is the result of vibration, made by an instrument, as really as is the sound of the violin. Dr. Atkinson replied that second-hand cheese was sometimes moldy, and sometimes maggoty. Dr. Friedrichs said that a universal language could be found only in music.

Dr. George Watt, of Xenia, Ohio, Editor of the Ohio State Journal of Dental Science, offered the following resolution, which was seconded by Dr. F. H. Rehwinkel, of Chillicothe, O.:

Resolved, That the report of the Chairman of Section 3, entitled "Dental Literature and Nomenclature," be referred to a special committee of five, the mover not to be one, which committee shall report at this meeting of the Association as to the most profitable and appropriate disposal of the paper.

On seconding the motion, Dr. Rehwinkel said he would like to ask the author of the paper how long life is, and whether, in view of its shortness, we can afford to waste time in this way, year after year. Where is the propriety of dentists trying to build up and introduce an entirely new and arbitrary language? For the past five years the author of this paper had been trying to tear down and destroy all existing languages, and all this time nobody had understood him. And if the new language were complete—were thoroughly matured—how long would it take us to master it by acquiring two words a year, with their derivatives? The doctor might call him a blockhead, or any term he found convenient; but he would acknowledge that he had not understood a sentence in the paper, though he had listened attentively.

Dr. Watt rose to explain and press his motion. Since he had

first met Dr. Atkinson, in May, 1854, he had entertained for him feelings of the warmest friendship; and he felt as friendly now as ever, and these ties of friendship would not be severed by this action, nor could they be by any process of malice or cunning; but he would not, without protest, allow even his only brother to waste the time of the Association, and bring on it the contempt of learned men everywhere. He said the paper bore no relation to the subjects assigned to the section. It might be literature, but it was not *Dental* literature. It might refer to nomenclature, but not to *Dental* nomenclature. If on anything, which he thought doubtful, it was on general philology. Papers of similar import had been presented for the last four years, and the Association had not profited by them nor by the discussions they elicited. This shows that there is something radically wrong; and now we have heard a continuation, with the same *animus*, and from the same "animile," and no member, not even the reader, has understood a sentence of it. This, too, showed that something is wrong, and he wished a special committee to tell us what it is, that it may be righted. When Dr. Atkinson expressed his own thoughts they were worth hearing; but there was not an original thought in the whole paper. Its thoughts, throughout, as with last year's paper, were the vaporings of Stephen Pearl Andrews. He had offered this resolution that it might be intelligently decided whether or not the volume of transactions shall be still burdened with such useless matter. He would respect the decision of the committee, whether they decided to send it to the Patagonians or the Chimpanzees, whether they bound it in morocco or calf—though he would prefer calf—or if they should distribute it as a tract for the enlightenment of the rising generation—just so the committee disposed of it. Perhaps it would be better to send the paper back to its original author. However, under no circumstances, could he be tortured into any feelings of disrespect toward the author of the paper. He was an honest, good man; but this paper is irrelevant to the subject of the section, and reference to a special committee is always respectful treatment toward any paper; and if such a committee decided that it should go into the published transactions, and that members should memorize it, he would make an honest effort to do so, though it would be a tough job.

After some brief remarks by several members, for and

against the resolution, Dr. Barrett said he very much regretted that such unpleasant discussions should occur, and he, therefore, moved that the whole subject be laid on the table. Dr. Watt and others rose to a question of privilege, to learn what was meant by "the whole subject." Dr. W. remarking that if it took the report of the section, as well as the resolution, he would second the motion. The chair seemed at a loss to know exactly what was intended by Dr. B., and asked him to re-state his motion. Not getting it any more definite, a member demanded that the motion be put in writing, when Dr. B. withdrew it.

A motion was then made by Dr. Hunter, of Jackson, Michigan, to lay Dr. Watt's motion on the table, which was lost by a large majority. Dr. W.'s motion was then put, and carried by a very decided majority. Dr. Crouse then rose to protest against the treatment which had been awarded to Dr. Atkinson. The motion just carried, he said, took his paper from the Association, and shut Dr. A. and his friends off from a hearing. The Association had no further power over the paper, and its author had no chance to defend it. He would give the meanest cur in the State better treatment.

Dr. Watt replied, that the member from Chicago had made a man of straw, using very short straws, and but few of them, and so he had been able to give the little fellow an unmerciful beating. But the facts were, that the Committee were to report on the paper to the Association, and therefore, there would be full opportunity for discussion. Who, he asked, had ever heard of a special committee having authority over the power appointing it?

The President announced the Committee as follows: Drs. Pierce, Rehwinkel, Friedrichs, Odell, and G. W. Keely.

Dr. Atkinson rose to a question of privilege, and eloquently addressed the Association for some thirty minutes. He thought it singular that though the vote showed that a large majority of the members held the same sentiments as the author of the resolution, yet, in the four years past, there had been no formal dissatisfaction expressed in reference to his reports. He made some sharp remarks about Dr. Watt, yet all the time gave him credit for uprightness of purpose, and said he could respect a man that had the courage to express and stand by his opinions. Though he and Dr. W. were tried friends, he must be allowed to say, that Dr. W.'s opinionatedness sometimes, as in this case, amounted to

bigotry; but he is descended from ancestors who stood up and were burned to death for mere opinions. He thought it important for such men to be right, for, right or wrong, they were fearfully set in their ways. (We are sorry we can't do justice to this speech of Dr. A., but the truth is we were gratified that the resolution had passed, and enjoyed the doctor's eloquence so much, that, for a time, we forgot we were pretending to report.)

The Committee reported next morning, but, for the convenience of the reader, we will insert the report here:

REPORT OF SPECIAL COMMITTEE.

The Special Committee to whom was referred a paper on Philology, read by Dr. W. H. Atkinson, as Chairman of the section on "Dental Literature and Nomenclature," would respectfully report, that they have carefully considered the subject referred to them, and are of the opinion that the paper under consideration is foreign to the purpose of the section under which it was read, and that if the Association desire further communications upon general philology, that a section of that title be created; but in view of the fact that at previous meetings of this Association similar papers have been received without adverse criticism, they would suggest that this one be allowed to take the usual course, and go with other reports to the Publication Committee.

This report was accepted and adopted by a unanimous vote, without debate. And thus ended, on our part, what we regarded as a very disagreeable, but imperative duty. We tried hard to get some one else to lead in the matter, but we failed to find the willing ones. Some expressed a wish to have some member rise to a point of order, in case the report should prove to be similar to its predecessors, and if the President should decide the point "not well taken," appeal from the decision of the chair, and if the chair should be sustained, to move to lay the report on the table. But in some of its details this would have proved unparliamentary, and worse still, it would have been highly disrespectful. We had determined that, if the matter could not be reached by a respectful measure, we would not touch it; and our motion was highly respectful to all concerned, though we may have spoken disrespectfully of the paper when electioneering to carry our point.

We have been minute in describing this part of the proceed-

ings, partly because we wish to correct false impressions in reference to it, and partly because of numerous inquiries which we can not afford to answer by private correspondence.

SECOND DAY—MORNING SESSION.

Called to order with quite a large addition to the number of delegates present. On motion of Wm. H. Goddard, it was

Resolved, That from and after this date the Treasurer of the Association be required to give such bonds as the Executive Committee (of the second division) may deem to be necessary for the faithful discharge of the duties devolving upon his office, and his predecessor shall not surrender the funds, books, or papers until he is informed by said committee such bonds have been executed.

On motion of Dr. Atkinson, the privileges of the floor were granted to Prof. Chas. Mayr, scientific editor of *The New England Journal of Dentistry and Allied Sciences*, and on motion of Prof. W. H. Morgan, the same privileges were accorded Prof. Stubblefield, of Vanderbilt University, Nashville.

Dr. E. T. Darby, Chairman of Section 4, on Operative Dentistry, reported that the section had but one paper to present, which referred to regulating teeth. This would be read by the author, Dr. Morrison, of St. Louis. The section would recommend full and thorough discussion of the methods of grafting upon roots, expressed regret that they could not offer more papers, but explained that but very few were present who had arranged themselves upon this section.

Dr. W. N. Morrison then proceeded to read the paper referred to, of which we are able to give but a very imperfect synopsis. To do it justice, the paper must be read, but we offer this abstract:

"During the whole course of his professional life, he had made only one mistake in regulating teeth. In that case the patient never developed to normal size; small in stature, diminutive in physique, with large, good teeth in a small mouth, he was free to admit that she would look a little better with that part of her anatomy less prominent. But look at the thousands of cases to the other extreme! The public were clamorous for deformed mouths! The first demand was to have all teeth extracted, and have all artificial, little, narrow, white teeth; second choice,

about the half of their teeth extracted to improve their appearance and keep them from decaying, and, thirdly, to have the crowns of the remaining teeth horribly mutilated by filing and grinding. And it was a disgrace to the profession, that there were so many claiming to be progressive dentists, who yielded to the demands and practiced to their requirements. A few months ago, the public and a few silly snobs through the press went into ecstasies over Patti's small mouth and beautiful teeth, while in reality it was a deformity—teeth irregular, one canine so much out of the arch that when she cast a bewitching smile, her lip sometimes caught upon it, and it was with some difficulty she could get it down. Her profile had that sorrowful, dinged-in appearance, so common at this time. Several years ago the papers had given an account of the selection of a characteristic American female head by the designer of the new silver dollar, that should accurately represent the correct type of American beauty. He did not know the lady, nor her dentist, nor did he have any information in regard to the condition of her teeth or articulation; but, seeing her face upon the few dollars which had passed through his hands, he would venture the assertion that her mouth did not contain thirty-two normally formed teeth. In treatment of cases the great difficulty was to control the patients and parents. Teeth were easily moved if the force be applied in the right direction, but they as easily returned to their old places. He, therefore, had decided objections to all of the complicated apparatus; and these were obviated by his system of regulating with screws and levers and rubber ligatures, which were secured to the teeth by thin annular bands or ligatures of platinum, cemented to the teeth with oxophosphate of zinc, where they remained until the operation was entirely completed.

Dr. M. seriously objects to mutilating teeth by drilling holes or pits in them to retain the apparatus in place. His platinum bands are applied to the most prominent parts of the teeth where decay can scarcely occur, and thus he avoids the irritation of the gums and other tissues at the necks of the teeth, while on the other hand he is not annoyed with the appliances slipping off, nor with the patient removing them and neglecting to promptly and properly replace them, as is often the case with some of the methods in use. By soldering levers to his platinum bands he can get all the power to bear on a tooth that is prudent. (We

never listen to Dr. M. without a feeling of gratification that our name is signed to his diploma.) Dr. M., with a vein of dry humor, remarked that when mechanical powers, better than the old fashioned lever, screw, and wedge were invented, he would use them in regulating.

Dr. Atkinson said he was sorry to see so little interest manifested. The paper was made up of aphorisms, with the exception of two or three points. He opposed the use of the screw; but the paper had more of the force of truth in it than he had seen in any other paper on the subject. To spend a year in regulating a set of teeth is of the past. From two to seven weeks gave ample time. To touch a tender tooth, as has been referred to, is sad to think of. He exhibited plates which he had used in regulating, but without cuts we cannot clearly set them forth. He claimed this system of plates would meet all cases.

Dr. Pierce claimed that while they would apply to some, they would not answer at all in other cases.

Dr. Shepard objected to any regulating appliance that the patient cannot remove for cleansing, and then replace.

Dr. Atkinson claimed, however, that his process was absolutely cleanly.

Dr. McKellops described and recommended Coffin's splint plate for regulating. He had called on Dr. Coffin when in London, and had there seen 2,500 plates that had been used in correcting irregularities, and were then thrown aside. Nine patients came to have irregularities corrected the day he was there. Dr. C. uses piano wire, No. 15, flattens the ends of the wires and tins them, and then vulcanizes them into the regulating plate, and their position is regulated by the judgment of the operator, the principle being in all cases observed that the wires make constant pressure on the teeth it is desired to move, so that they are gradually but constantly pressed in the direction of the positions they are intended to occupy. He exhibited a number of specimen plates which had done the work desired—one that had been worn by his son, which the boy could remove instantly, cleanse and replace without trouble. He also described the method used by Dr. Patrick, of Belleville, Illinois, which he thought was worthy of attention, inasmuch as it was efficient and simple.

Dr. Noel said he had been very successful, in locked cases, in the use of an apparatus he had first seen used by Dr. C. R. Taft.

A plate was vulcanized with projections behind the teeth to be moved, and into these dovetail grooves were cut to receive wooden wedges. The wedges could be made so prominent that strong pressure was made from the start, and their expansion by moisture gave additional pressure.

Dr. McKellops wished to say that after the publication of Dr. Coffin's article, it would be better understood by those who had seen the specimens of practical plates shown by him.

Dr. Shepard rose to endorse the Coffin method. Dr. Clapp of Boston, had worked for Dr. Coffin, and ten years ago he had brought specimen plates to Boston, and he had used them with success ever since, but he had not fully appreciated the plan till last summer, in London, he had seen the numerous cases in Dr. C.'s office. The full credit of the device devolves on Dr. Coffin. Dr. J. D. White has a split plate in Kingsley's Oral Deformities; but it is unworthy of notice in comparison with Coffin's. By dipping the ends of the wire in a solution of chloride of zinc, the tin adheres better, and sometimes he tinned the whole wire, to prevent its oxidation. He said it was very important not to wound the wire, or make a very abrupt bend in it.

Dr. Field was surprised that Coffin's plate was so little used, even in Boston, where it was introduced ten years ago. He had been in Boston—had even attended two meetings of this Association there, but had unfortunately failed to see it in use.

Dr. Darby said that in locked cases, where it became desirable to cap posterior teeth to keep the mouth partially open, it was very important to cap them all, otherwise those relieved of pressure would elongate by rising from their sockets. Where desirable to elongate the molars and bicuspid, he had accomplished it by having the patients wear plates thick in the palatal region. To hold the teeth in place, after correction, he sometime made a rubber or celluloid crib to wear over and around them.

Dr. C. R. Butler said many modes that look nice on paper are utterly worthless in practice. No plan would meet all cases; but Dr. Coffin's method covered a greater variety of cases than any other in general use. It is less expensive than most plans. It is a decided advantage that a bungler cannot make and use it, for brain and hands are both necessary to its successful use. Another point in its favor worthy of notice was that it held firmly in place teeth which it is not desired to move.

Dr. Geo. W. Keely spoke of a case in which an upper front tooth was locked inside of lower. He adapted a plate, and made a slot behind the tooth into which he adjusted a piece of sea-tangletent, which it is known expands to a great extent and with great force. The tooth was very soon forced outside of the lower, when nature completed the work. In locked cases for ladies of thirty-five or over, he would cap all the molars, and get the bite as short as will answer to let the tooth out. After starting with tangletent, he would finish with wooden wedges. (The first time we recollect of tangletent being recommended in wedging and regulating, was, perhaps in 1868, at a meeting of the Indiana State Dental Society. Dr. Watt called attention to it then and there. It may have been noticed before, however.) Dr. K. said he, also, was opposed to extracting the first permanent molars, when they were good and useful. But if they were extracted before the second were developed, the latter would come forward bodily and look as well as the first; and the antagonism and general appearance of the mouth would be entirely satisfactory. This he could prove by plaster models in his possession and now present. Accordingly, he exhibited a number of plaster models which really seemed to bear him out in his statement.

Dr. Pierce said when the upper front teeth were locked inside the lower, he sometimes moved one tooth at a time. Beginning, say with a lateral incisor, he would drill a small hole in its posterior surface near to its cutting edge, and another hole in the first molar near its neck. These holes would retain the terminations of a small brace made of gold plate alloyed with platinum, and rolled down to 24. Let the strip be a sixteenth of an inch wide, having its ends shaped so as to rest in the holes of the teeth, and of such length that it will be on a strain when forced in place. Its constant tendency to resume its former shape gives steady pressure, which causes a rapid yielding of the tooth to be moved. He had acted on two teeth at once by this method. The gold brace should be secured by a thread tied to a tooth. Dr. Keely wished to add that a point gained in the early removal of the first permanent molars, when needed, is that in coming forward bodily, as they do, room is made for the full development of the third molar, which, in the American mouth is so defective, simply for want of room for proper development. Dr. Crouse advocated in general, the expansion of the mouth, so as to

get room for all the teeth. In a case he reported he had expanded the back parts of the arch to the extent of an inch and a half in the lower, and nearly as much in the upper jaw.

Dr. Marklein said he had found it easy to move teeth forward, but much more difficult to move them backward. He showed a case where the first upper molars were gone, and asked how to move the ten front teeth backward.

Some one suggested by traction from the remaining molars, to which objection was made that the molars would move forward. Another suggested moving back one or two teeth at a time by wedging. Another, Dr. Morrison, perhaps would make the posterior part of the head the point of power to draw them back.

Dr. Morrison spoke of Dr. McKellops having brought the original Coffin regulating plates to St. Louis as early as 1865, and he had been familiar with their use ever since. He said the rubber plate with bulb posterior to the tooth to be moved, as mentioned by Dr. Noel, will not answer for short teeth, as it will not stay in place unless tied, in which case the ligatures do injury at the necks of the teeth. He hoped the members would take notice that in his mode, the ligature—a platinum band—is applied to the bulb of the tooth. To get a base for traction to draw a front tooth backward, he would sometimes yoke several teeth together to draw against one—say first and second molars, and a bicuspid, if Dr. K. and others didn't pull out all the first molars.

Dr. Keely showed a model of a mouth, and asked how Dr. M. would proceed to save such molars. If Dr. M. replied we did not get his remarks. The hour of adjournment had arrived, and members were impatient, and many of them in motion.

Adjourned till 2:30 P. M.

SECOND DAY—AFTERNOON.

Called to order promptly at 2:30 P. M., President Smith in the chair. Minutes read and approved.

The Committee relative to the death of Dr. Hawxhurst reported a paper recognizing the talents, attainments, and capabilities of the deceased—alluded to the prospect of a long and happy life apparently promised him, the great field of usefulness which seemed spread out before him, expressed the most cordial sym-

pathy for the stricken-bereaved wife—a widow almost as soon as a wife—referred to his example of great energy, industry and thoroughness, as worthy of imitation, especially by the younger members of our profession, etc. The report was adopted, and ordered spread upon the minutes.

Call for the report of Section 5, on Pathology, Therapeutics, and Materia Medica, Dr. F. M. Odell, Chairman. Two papers were announced, one on Pathology—"Pulpless Teeth," by Prof. A. O. Rawls; the other by Dr. Harlan, on Therapeutics.

In some prefatory remarks Dr. Rawls said he had believed for years we had been too enthusiastic and positive. He supposed the main purpose in dividing the work among sections was that all not reliable may be weeded out. He then proceeded to read a paper on "Pulpless Teeth," in which he spoke of two tissues more or less alive, the cementum and the periosteum. He maintained that there is but a single fold or thickness of periosteum between the root and the walls of the socket. This view, not being in accordance with the ordinarily accepted one, was somewhat criticised. We felt the need of rest at the time Prof. R. read his paper, and therefore did not take notes so that we can give a fair synopsis of it. It may be worth while to notice that he used the term vital force—*vis vitæ*—and Prof. Mayr, of Springfield, Mass., attacked the term as an empty phrase, meaning nothing at all. We rather thought that he failed to carry the Association with him in his criticism, as quite a majority of the members appeared fully content with the term. At any rate, succeeding speakers did not hesitate to use it when it came handy.

Dr. Harlan, in his paper, recommended hydrogen dioxide as an application to alveolar abscess. He gave a formula for its preparation, too complex for these notes, perhaps, and said its solution in ether is more stable than its aqueous solution. He spoke of the dioxide also as a bleacher. This is readily understood, inasmuch as by its decomposition it gives off nascent oxygen—or oxygen as ozone.

Prof. Mayr said ozonized water would bleach and disinfect the same as hydrogen dioxide. While ozone will decompose coloring agents, free oxygen is as harmless as is carbonic acid. To know how to bleach a tooth, he said, it was necessary to know what the coloring matter is.

Dr. Ingersoll called attention to the distinction between al-

veolar abscess and alveolar ulceration. In some cases ulceration begins at the apex of the root and extends to the margin of the gum. The pulp dying causes disease of the periosteum, usually resulting in abscess, preceded, however, by acute inflammation, and thickening. He regretted that in the minds of the profession there is great lack of clearness as to alveolar abscess and ulceration. On extraction we sometimes find a black deposit, mainly of limesalts, on the apex of the root, with no sac about it and no canal or fistula to or from it. This deposit could not be from the saliva, as it could have no access to the place of deposit in such cases. Nor had its material been carried thither by gravitation, as it was found in the superior maxilla. With all these conditions it could not be precipitated from the saliva, though it had been called salivary calculus. The term is misleading, for it can come only from the blood, and, therefore, following the analogy of our limited nomenclature, it was properly called sanguinary calculus, just as we speak of biliary calculus. It does not contain all the materials found in salivary calculus, as epithelial scales, etc.; but it contains coloring matter not found in ordinary tartar. Sometimes the two deposits meet, one gradually extending from the apex and the other from the cervix of the tooth; and sometimes the sanguinary calculus is found in a well-defined ring about the neck of the tooth under the margin of the gums. Though salivary calculus varies greatly in texture it is worthy of notice that the sanguinary is always hard. When it is found deposited about the cervix, some have suggested that the broken down, dissolved margins of the sockets may have furnished limesalts for it.

Dr. Pierce rose to confirm the views of Dr. I. He liked the name sanguinary calculus, as it definitely suggested the blood, and not the saliva as its source.

Dr. Friedrichs would ask Dr. Ingersoll how many cases he had seen in which the saliva could not have access to the point of deposit.

Dr. I. replied that he had probably seen very many before he understood the facts and conditions involved—probably not over twenty since reaching a clear understanding of the nature of the cases.

Prof. W. H. Morgan agreed with Dr. Ingersoll as to his views on sanguinary and salivary calculus, and would ask Dr. I. if he did not regard the presence of the former as indicative of

the approach of the state sometimes called Riggs' disease, and an affirmative answer was given,—that it was indeed, one of the most prominent symptoms.

Dr. Rawls said there were two ways by which inflammation may occur in the socket—by beginning externally and dipping down into it, or internally by obstructed circulation. He believed careful examination would show an opening from above or below, in the cases described as sanguinary calculus, which he claimed were concomitants, and not results of Riggs' disease. While differing with Dr. Ingersoll in some points, he would like to hear the views of older members, Dr. Watt, and others.

Dr. Watt said he heard his name called, and his opinion asked for, but he had no idea what the member had been saying for the last ten minutes. Finding this remark misunderstood, and that many had failed to hear it, he refused to repeat it, though asked to do so. He replied to requests for its repetition that he had been merely feeling his wind and trying his voice. (The fact was, that the noise in the hall had prevented his hearing the closing remarks of Prof. Rawls, and he was at a loss to know on what points his opinions were desired. He had not the slightest intention to intimate that the doctor's remarks were not to the point and instructive.) He spoke of sanguinary calculus having been a stumbling block to the dental profession, but physicians had been familiar with the subject from time immemorial. He spoke of a case in which the late Dr. Martin and himself had removed a sanguinary calculus lodged among the abdominal muscles of a woman. This was reddish, like sesquioxide of iron, was almost the shape of an egg, and weighed over thirteen ounces. A calculus is readily formed after the first particle finds lodgment,—its separation probably being due to inflammatory action. The materials for these calculi are all in the blood; and it may be that the blood loses its vitality to such extent that it is not able to hold the normal quantities in solution, and particle by particle, they are dropped. The deposit of limesalts on the necks of the teeth, as ordinary tartar, he regarded as due to the want of free carbonic acid in the saliva, and its absence may be due to ammonia having combined with it, this alkali being given off sometimes so abundantly as to be quite noticeable on the breath.

Dr. Ingersoll said a little thought would remind all that deposits of sanguinary calculus are quite common. We are

familiar with biliary calculus, ossification of the blood vessels, etc., in which the phenomena differ but little from the sanguinary calculi already referred to.

Dr. Buckingham said it was not difficult to build up a theory, but the important consideration is, will the facts sustain it? The materials which constitute these various calculi are all held in solution in or by the blood, and they are physiologically deposited, as in the formation of bony tissues, but we don't know how. Or they may be deposited in obedience to the laws of chemistry, as when lime-salts are crystalized on bullets or other foreign solid bodies left within the body, in contact with the circulating fluids. So, whether they are deposited in obedience to chemical or to vital force, there is a sense in which we know and can know nothing at all about them. Some one inquired at this point, What is vital force? Dr. B. replied that we do not know what any force is, and yet there is a sense in which we know something in regard to it. He might ask why a blind man cannot see, and no one can tell him. He would remark to our young friend who had denied the existence of vital force—called it an empty, unmeaning term—that he knew nothing about gravitation, affinity, or any other force, and he would deny their existence with equal propriety. We all know that when a living body dies, its materials obey laws or forces different from those governing it in life. He believed vital force to be a mysterious power emanating directly from God. (We were surprised to have to report Prof. M., of Springfield, Massachusetts, as stating that vital force is an empty term—meaning nothing—in view of the fact that but a short time before, an editorial in the *New England Dental Journal*, criticising the *Items of Interest*, said, in substance, The blood is a liquid material; life is a force.) Dr. Buckingham went on to explain that hydrogen dioxide is easily decomposed. Its elements are held together by a very feeble affinity. By its decomposition oxygen is given off, and that in its nascent state, and therefore, having the energy of ozone, which some think is a combination of oxygen with oxygen, as represented by the formula O_2O (We have been inclined to regard ozone as simply nascent oxygen.—REP.) For bleaching purposes he would give a formula recommended by Dr. E. C. Kirk, composed of sulphite of soda with borax ground together. The theory is that the sulphurous acid

of the compound is the bleaching agent, and that it acts deeper than chlorine, and gives better results.

Dr. W. H. Morgan said, in relation to the first paper presented by this section, that he did not expect that all pulpless teeth can be preserved in a healthy state by any process. He said law, force, and power are not unmeaning terms. He expressed surprise at the assurance and complacency with which our young friend denied the existence of vital force, denied that we have any knowledge in regard to it, and yet could get up and tell us all about it, as well as the other recognized forces in nature. The primary, original force, from which all the other forces emanate, and into which they may be all resolved, he said, was the will of God, the Creator of all things, whether matter or force.

Dr. Atkinson said he must congratulate himself that, in obedience to the force of circumstances, this Association had resolved itself into a regular Atkinsonian meeting, and had become crazier than ever was Atkinson himself. The entire Association he said was troubled by ignorance of terminology. "What is ulceration," said he, "but an abscess broken open?" What was suppuration but an inflammation, and inflammation but oxidation? (Just then a number of ladies came into the hall to be ready to go to the organ concert, to which the members were going on adjournment.) Dr. A. said he blessed the Lord that the ladies wear long hair, as thereby they received and retained all their inspiration. He believed in immediate and permanent inspiration, and he believed in the *vis vite*—vital force, and all the other forces, and also believed that all power comes from God. (It is scarcely necessary to tell the JOURNAL readers that Dr. A. wears his hair as the Nazarites, hence his compliment to the ladies.)

At half-past four the Association adjourned, and the members, with their lady friends, proceeded to Music Hall where they listened to one of Prof. Whiting's programmes on the great organ. Among other selections he gave the Storm Fantasia by Lemmens, and when fairly under way with the gentle prelude, which precedes the stormy division of the number, a gentle rain began "a subdued, subduing strain" on the great wide roof, which added much to the naturalness of the scene, and very sen-

sibly impressed the select audience and all present, except just one individual who probably could not hear. And thus closed the second day of the session.

THIRD DAY.

We find our notes of the meeting growing too voluminous; at least they will occupy more space than we intended to give them, and this, too, if we add nothing in addition to our account of the first two days. Accordingly we shall accept an accident as a providential indication of what we ought to do. We had full notes of the third day's discussions, but in the hurry of getting up matter for our September number, correcting the proofs, etc., these notes have mysteriously disappeared. All we shall do with this day, then, is to notice some scenes and incidents of special interest, which we shall record from memory, and from a few snatches noted down, with reference to writing out more in detail while the Association was engaged in the transaction of miscellaneous business.

After calling to order the Association proceeded with the consideration of the report of Section 6:—Pathology, Therapeutics and Materia Medica, Dr. F. M. Odell, Chairman.

Dr. Atkinson defined food as anything that can be assimilated by the nutritive functions, and remarked that the feeder must be fed on that which has had life, but has died. The same substance may be food, medicine, or poison, according to the circumstances influencing it.

Dr. Friedrichs maintained that all knowledge of the *modus operandi* of medicines is empirical. No one can correctly infer what their action on the system will be from a knowledge of their physical or chemical properties.

Dr. Buckingham said medicines are used to benefit the system, as lubricants are used on machinery. We know to a certain extent the action of medicines, yet there is a sense in which we know nothing. Matter atomically is inert, in combination, power is manifested. A poison and a food may be composed of like materials, the quantities and proportions being alike, while the atoms are differently arranged in their combinations. He illustrated by the use of letters in forming words. The same letters may form a reverent, or a profane word.

Dr. Watt said that while it is true, in a certain sense, that we

know nothing about the *modus operandi* of many medicines, yet there is a sense in which we know the action of some of them as well as we know how houses are built. As an example, arsenic is a poison. In destroying life it overcomes low vitality more readily than that which is vigorous. Diseased, or morbid germs he said, had less vitality than normal, healthy tissue. By killing these, so that they can be carried out of the system by the emunctories, the system is rid of morbid tissue, and is thus placed in better condition. The nerves and other organs can, therefore, better perform their functions.

Dr. Odell seemed not pleased with these remarks,—said some medicines seemed to act by mere presence, as is the case with subnitrate of bismuth. He admitted that we could understand the action of oxygen on the system. Dr. Watt claimed that if we know how oxygen acts, our knowledge of the *modus operandi* of medicines is not all empirical. (In the meantime, to speak of a substance acting merely by its presence, is to speak of it doing something while it is doing nothing.—REF.)

Prof. Mayr reported an experiment which he thought showed that arsenious acid had but little ability to devitalize low organisms; but it should not be claimed that a woodman can not wield the axe, because he can not cut down the whole forest of Lebanon in a single season.

Dr. Darby detailed a report of a series of experiments by Dr. J. Foster Flagg, which Dr. F. claimed had demonstrated as a fact that arsenious acid is not absorbed. He said Dr. F. had taken a twenty-fifth part of a grain of arsenious acid, applied it on lint to an exposed tooth-pulp, leaving it there, sealed over, for twenty-four hours. He applied the same piece of lint to another exposed pulp, for a similar period, and to another, and another, up to twenty. After this, he applied it to the web of a frog's foot, and the frog died. On careful analysis, not a trace of arsenic could be found in any part of the frog, or in any portion of the pulps except at the points of its application. From these experiments it was claimed that arsenic is not absorbed.

Dr. Buckingham said it would not do to take much stock in such statistics. He knew something about that frog. Not that he had seen the arsenic applied, after having been used in the twenty teeth, but he had made analysis of various portions of the frog that was presented to him, with a history as given now

by Dr. Darby, and must say that its entire body,—skin, muscle, viscera—was permeated throughout by the arsenic. If the arsenious acid had been applied to the frog as represented, the experiment gave proof most positive that arsenic is absorbed. After the Association had met and adjourned the meeting at which Dr. Flagg reported the frog experiment, he had asked him how he had ventured to make such a report in view of the fact that he had found the poison all through the frog, and he replied that he had repeated the experiments with another frog, and had made the analysis himself. (Taken all in all, this is a remarkable statement on the part of Professor Buckingham. Some of us knew very well that arsenious acid is absorbed, or at least that it permeates animal tissues, with a good degree of readiness; but when our good friend, Prof. F., with such pleasant and plausible airs, details his experiments, telling us that the professors of chemistry had made his analyses, and had found no arsenic, except at the points of application, we feel that it is scarcely worth while to contradict. Prof. F. does not misrepresent as much as he forgets. He is too busy to remember all: and his statement, as quoted by Dr. Darby, has been molding professional opinion all this time, while the statement of Prof. Buckingham is now for the first time made public. Take another illustration of the unreliability of statistics, when a busy life proves too much for the memory: Some will remember that about fifteen years ago, when the Association met in Cincinnati, Dr. F. announced, as he said, in a whisper, that with plastic gold he could make a good gold filling in less than two minutes. A committee was appointed to witness the operation, which reported, at least individual members of the committee reported, more than two minutes spent, and imperfect work resulting. Yet so treacherous is the memory of a very busy man, that some years afterward, Prof. F., at a meeting of the Association, referred to his Cincinnati effort, speaking of it as the tooth he had filled in two minutes, and, said he, very lately I saw that filling and it is a perfect filling, saving the tooth, to this day. A member sitting in the audience said to one of our leading dentists beside him, he has forgotten, for it was my tooth he filled, and the filling came out right away. The explanation is that he had looked at a different filling, having an interesting history, and made a mistake as to its identity, and all through a

lapse of the memory. Nothing wrong, morally speaking, but unfortunate in its influence on the profession. By such scenes we are reminded of another lapse of memory, by a good member of our profession. He was telling the Association how friendly his professional neighbors were. They visited him daily. Why, even my venerable friend sitting here, notwithstanding his painful infirmity, comes daily—spends hours every week in my office. The “venerable friend” tells, smilingly, that it was said with such an air of candid assurance that he was strongly inclined to rise and say, “Mr. President, that’s even so!” though he had not visited the friend’s office in ten years. We have digressed, in this long parenthesis, to show how unreliable are some of our statistics, and how cautiously we should accept mere statements as authority. On the whole, we regard Professor Buckingham’s narration about the frog as, under the circumstances, the most startling we ever heard in the Association. It sets back opinions long held without examination, but accepted on the statement of Prof. F. And what is signified if he did repeat the experiments with another frog, and failed to find arsenic absorbed, when Professor Buckingham, an experienced chemist, had found it abundantly absorbed by the tissues of the preceding frog? Negative testimony goes for nothing against positive.)

Dr. Buckingham added that a dead pulp was like a cushion, having considerable firmness of texture, and he thought that arsenic would permeate it with difficulty.

Dr. Allport explained Dr. Flagg’s position as to how pulps are devitalized by arsenic. He regarded the drug as an irritant, that it cut off the circulation at the apical foramen, and thus strangled the contents of the pulp chamber. Dr. A. said he had noticed that when a pulp has not been wounded, the smallest quantity of arsenic will kill, while a wounded pulp can scarcely be killed by it in some constitutions. He had seen a slough separate, leaving living, healthy tissue beneath, after the application of arsenic to a wounded pulp.

Miscellaneous business was taken up, and a committee reported appropriate resolutions on the death of Dr. M. S. Dean, a lamented member who had held every position of honor and trust within the gift of the Association.

Resumed regular business and heard the report of Section 7

—Physiology and Etiology. One paper was reported on "The Origin or Physiology of Nerve Force," which was read by its author, Dr. W. C. Barrett, Chairman of the section. We can not do justice to the paper from our notes, and will, therefore, make no attempt at a synopsis of it.

FOURTH DAY—FORENOON.

After some discussion it was decided to offer a prize of two hundred dollars for the best original report on the etiology of dental caries. We are not able to give full details, but will try to do so in time for our smartest subscriber to win the prize.

Dr. Buckingham gave the salient points of a paper on celluloid. Its working temperature is between 290° and 310° F. He used single teeth—not blocks—with celluloid. He referred to the want of good taste manifested in failing to adapt the appearance of the teeth to the age and sex of the patient, the teeth of a young lady being put into the mouth of an old man, etc.

Dr. Dorrance read a paper on the "Ill Effects of Plastic Bases." The paper was received with great favor, and an expression that it ought to be published for gratuitous distribution, by way of educating the public. Dr. D. also exhibited a new blow-pipe which attracted great attention, and was generally approved. He also gave a formula of a base for solder. He said it was highly important to use only the purest metals in preparing it. It is composed of silver 1 part, zinc 2, and copper 3. Melt the copper first, add the silver, and after it is fused, add the zinc gradually till the fumes cease to escape. The alloy is tough, and can be rolled into plate. For silver solder add one part of the base to four parts of silver. By adding it to gold any carat desired may be obtained.

Dr. Atkinson recommended Reese's metallic base, called "gold alloy," giving some directions as to its use, and highly eulogizing it.

Dr. Robinson exhibited a metallic lining for the palatal surface of celluloid and rubber plates, on which he had taken out a patent. The metal, he said, is a mixture of platinum, tin and gold, very little gold, but plenty of tin. With some modification it makes a material for filling.

Dr. Hurtt objected to a part of the proceedings this forenoon as degrading, if not disgraceful. He had come expecting to hear

able discussions from eminent men, calculated to benefit the profession, their patrons, and the rising generation of dental students and young practitioners. (The chair called the doctor to order, but he appealed and was sustained.) He was opposed to using the Association as an advertising agency, by members begging for patronage from or through it, in order to sell their wares. He was very sorry, indeed, to see Dr. William H. Atkinson, a representative of all that is high and honorable, belittle himself by parading before this Association a patent device in which he holds a financial interest. He had been taught that if we wish to bring a patented or proprietary device before the profession, we must do it otherwise than by a direct use of the American Dental Association as an advertising medium to be placarded and besmeared by puffs. It is pitiful if the Association must protect itself by the usual notices, "No bills posted here!" These sentiments elicited most hearty applause.

FOURTH DAY—AFTERNOON.

Dr. William H. Goddard, President elect, was duly installed, and made, as he can, a forcible and pointed address, ending with the characteristic remark, "I assume the gavel feeling a consciousness of success." And why should he not; for few, if any others in our profession are so familiar with parliamentary usages, and his age and native dignity will insure respect.

Prof. J. Taft read a paper on "Dental Literature." He stated that the United States have more dental periodicals than all the world besides. Each month they print and distribute 425 pages, making over 5,000 in a year. The British journals contain 1,692 pages a year, the German, 1,984; the Italian and Spanish, 164; the French, 948, making in all 4,824 pages.

Dr. Crouse read a paper on "Dental Education." He claimed that collegiate education had deteriorated on account of the ease in obtaining degrees.

Dr. Atkinson said that the period of attendance had nothing to do with the conferring of degrees. It mattered not if the man had attended one year or ten, his attainments were the deciding circumstances.

Dr. Pierce insisted on the importance of a State board to conduct the examinations for degrees.

Dr. Barrett said the idea of disinterested boards is very

pretty, but in the present state of things it would turn out something like the Wisconsin diploma mill.

Dr. Taft referred to an effort in this direction some years ago, tried by the formation of an association of dental colleges; and though that experiment failed, he regarded it as a step in the right direction.

Dr. Buckingham defended the colleges. He thought they generally did the best they could with the material sent them, and he doubted if the formation of an outside board would help matters.

Dr. Morgan said it was not true that responsible dental colleges are in the habit of conferring undeserved degrees. He did not believe in a State Board of Examiners, because the professors who daily taught the students understood their attainments better than any board could by a brief examination. He was decidedly opposed to the combination of medical and dental colleges as a means of educating dentists. He attacked the idea of ignoring the D. D. S., for the M. D., and asked if the latter were any more honorable than the former.

Dr. Allport thought it useless to try to build dental science on any other foundation than that of medicine. The greatest quacks, said he, are graduates of dental colleges. (Unless there are greater who are graduates of medical colleges.—*REP.*)

Dr. Stubblefield, Professor of Anatomy in the Vanderbilt University at Nashville, was now introduced, and made a few remarks.

Dr. Noell offered a resolution in reference to the formation of an association of the dental colleges, for the purpose of adopting rules in reference to examinations, etc.

After thanking nearly everybody, and after permitting a member to scold some unmannerly reporters, adjourned to meet, a year hence, at Niagara Falls.

In this long paper we have not tried to report the discussions in accurate detail. We have set down naught in malice—but we may have extenuated. Instead of dry detail of arguments and statements of principles, we have tried, in a sort of gossipy way, to give of the meeting such a notice that any reader familiar with the workings of the Association can readily imagine himself present taking active part in the proceedings. This we hope will be found more readable than would a rigid adherence to

the precise order of remarks set forth in our previous efforts in the way of abbreviated reports. If this hope shall be realized we shall be gratified; if not, we shall try to avoid the method in the future.

A SIGN OF APPRECIATION.

THE *British Journal of Dental Science*, its issue for July 1st, uses one select and two original articles from the June number of the OHIO JOURNAL. It is pleasant to be thus appreciated by a journal of so much talent and experience.

And this reminds us that one of our exchanges compliments the Illinois State Dental Society on the fact that its papers are more extensively copied and read than are those of any other society. This is true, and is doubtless mainly due to the merits of the papers, but partly to the fact that the OHIO JOURNAL has used them to a considerable extent. As the JOURNAL compiles but little, its selections are regarded as standard papers, and are used accordingly.

DR. PEASE'S ADVICE.

WE have read Virgil's Fourth Eclogue several times and fail to see its resemblance to the Prophecies of Isaiah. We read his Georgics too, one that tells how to reproduce bees, in case they are all lost—pretends to do so, but only gives a recipe to secure a supply of maggots, ending with green flies. Such is the stuff crammed into boys through the medium of the dead languages, Dr. P., to the contrary, we are still glad they are dead.

But when Dr. P. did you gain the right to say to us, "You with your chemicals on your bench," thereby intimating that while our observations were confined to the bench, yours were made in the mouths of patients? It is quite probable, Dr. P., that we have spent more time investigating the amalgam fillings inserted by yourself than you have.

You, kindly and properly, credit us with having "used little probably no amalgam." We have used none except that inserted by others, but have used much of that, just as we have used much tobacco smoke at second hand. While we have not inserted we

have taken out very many amalgam fillings. And being for many years, recognized in the profession as a teacher of chemistry, it fell to our lot to be consulted on this subject probably ten times to each one that Dr. P. was consulted in the same way. And, for the same reason, added to the fact that from 1852 till 1870 we gave gratuitously more than three-fourths of our time to the dental profession, we have probably tried a dozen experiments in the mouth for each one tried by Dr. P. in similar positions. We have paid rent on months, year after year, in which to experiment, and we have become tired of the oft repeated insinuations that our experiments were "on the bench," or "in the laboratory."

On page 408, September number, Dr. P., in speaking of amalgam fillings, says, "I have never seen a filling that wasted, that is, eroded by an acid, and from that, throughout his article, he assumes the fact of non-wasting as proved.

By parity of reasoning we can prove that no amalgam fillings are inserted into teeth; for in our forty years' experience, as physician and dentist, we have never seen one inserted. But we have seen scores of amalgam fillings "wasted" in the mouths of patients. We have seen them so much wasted that, to the unaided eye, no trace of metal was observable when they were broken into fragments. This would not be so likely to occur with those of recent date, but twenty-five years ago, such a result was not uncommon.

Again, after giving rather an amusing account of how he happened to become an electric expert, Dr. P. gravely tells us, "I have never seen any indications of galvanic action in the mouth." But some of us have seen such indication, nevertheless; and what does his negative testimony amount to? But, perhaps he regards it as proof positive of a negative; as when he says, "As I have shown there is no waste of an amalgam filling," the only showing being that he had never seen it. Shall we report a case?

In 1865, Mr. J. H. Shields, two miles east of Xenia, had a second lower molar decay on the posterior proximal and grinding surfaces, so as to make a compound cavity. The decay was removed, and the cavity was filled with Hill's stopping, to await a convenient time. The tooth was comfortable, and Mr. S. was in excellent health. A few weeks afterward a traveling dentist filled it, charging for a gold filling, which he persuaded Mr. E.

was most excellent work. But his mouth felt uncomfortable, He was persuaded that fatigue was the trouble and all would be right; but he couldn't sleep. He bore with it a few days, taking an occasional anodyne, and sought the traveling operator. He was assured that the tooth had nothing to do with his trouble, but that he had neuralgia. In despair he called on us, and we told him, on a slight examination, that the tooth was partly filled with gold, and partly with baser metal. He charged us with professional jealousy. We put a mouth glass behind the tooth and gave him a hand mirror, and he saw the two metals. He said he could not afford to lose it after paying so much for it, and, said he, "As the Yankee assures me it will be all right in a few days, I'll try it awhile." He got worse—called in his family physician, who treated him for debility and *insomnia*. His description of the sensation was that it was "not exactly pain, but ten times worse." Afterward he came to our office, pale, emaciated, haggard, and bordering on insanity—said he had not slept in a week, and looked as if he was telling the truth. He was a very intelligent farmer, and none stood higher as to integrity. He said, "something must be done; but I don't believe your diagnosis is correct. It doesn't look reasonable. I expect to loose the filling without relief, but do as you have suggested." We removed an amalgam filling, which was covered with gold on the grinding surface. The relief was instantaneous and permanent. The tooth was again filled with Hill's stopping, and in a few weeks with gold, which lasted, with comfort, as long as he lived.

Being a teacher, a chemist and a physician, it has fallen to our lot to see quite a number of cases similar, some from our own practice, but many more from patients brought to us for counsel. It is not at all strange that we should see a greater variety of cases than Dr. P., and therefore not strange that we should see such cases as this one, even though he may have seen nothing of the kind.

We know that Dr. P. has been a diligent and industrious student; but we are not ready to concede that he has given the amalgam question, or the chemistry of the mouth, more attention than we have. We could multiply cases; but if one like that of Mr. Shields is not taken as testimony, medical science has no testimonials to sustain it, and is wholly unworthy of our confidence.

And it will not do to blame the general mercurialization on

the physicians. Mercury is not used by them to any such extent as intimated by Dr. P. We are a regular physician, graduated in the class with the lamented Wm. H. Mussey, and were with him, a private student of his renowned father. It is not, therefore, likely, that we were unduly prejudiced against mercury as a medicinal agent, yet we have attended to a heavy practice, frequently visiting over twenty patients in a day, without prescribing or administering a mercurial in six months, and once we carried no mercurials for a year. Had once the care of 1400 men, with no mercurials. We do not know that we are peculiar in this respect.

And if Dr. P. had spent on chemical science a part of the time wasted on Latin, he would know that the affinity of mercury and silver for each other would not exclude other affinities. Put a base in contact with several acids, each forming a soluble salt with it, and each will get a portion of it regardless of the strength of its affinity for any one of them.

Nor was it necessary for Dr. P., in addressing us individually, to assert and re-assert with vehemence—"emphatically and *in toto*"—his denial "that decay is caused by a diffused acid;" for he is addressing one of the first to publish such sentiment, and "emphatically" the first to tell what "acid is generated *de novum in loci*, on the spot," in each of the four varieties of caries, as well as to tell how they are generated. And how unchemical, right after so much Latin again is the assertion, "Silver has stronger affinity for quick-silver than anything that enters the mouth. It clutches and holds it fast in its embrace—will not part from it under any conditions that can obtain in the mouth." Yet notwithstanding their clutching, we have seen evidence that they had both been clutched by some chemical re-agent within a week after their insertion.

In reading the closing verses of the book of Ecclesiastes, we always admired the calm content with which the author says, "Let us hear the conclusion of the whole matter;" and now we have a similar mental state shown by our esteemed Dayton author. How mellow the paragraph, "Since amalgam fillings do not waste, either from chemical erosion or friction," etc. Now isn't that juicy, in view of the fact that all his proof rests on his own reiterated statement, while its sole foundation is, that he has not seen such wasting. The diamond wastes "by friction."

It sounds very strange to a chemist to hear that an alloy,—or worse still, often a mechanical mixture merely,—can not be acted on at all by a fluid capable of corroding each individual metal rapidly; for, generally, alloys are corroded more readily than pure metals. We have seen a plate of pure silver, of the thickness of 24, Stubbs' gauge plate, eaten in holes in less than a year, when worn by a patient healthy enough to attend to her household duties. We have precipitated chloride of silver from the buccal fluids of patients having no silver in their mouths except that in amalgam fillings. And we have also found traces of mercury in the buccal fluids of similar patients, one of these being the six hundred acre man spoken of in a former number, even though Dr. P. has imagined we were tied to a bench when investigating. And now, we do not expect to write on this subject again for a long time, unless to answer questions from young friends. "A Physician" has not asked us for space as yet, and he may not. Our days for experimenting are mainly over. Of those now experimenting in the directions formerly pursued by us, many seem so careless as to be almost reckless. One carefully conducted experiment gives more light than a dozen of hurried ones. A new generation has grown up since some of our experiments were tried, and a few of our youthful friends have taken up similar investigations, honestly supposing themselves pioneers. We are delighted to see such efforts, for we did not find out all. And let all experimenters bear in mind that "truth and simplicity are twin sisters." The way that must be traversed to find a truth may be rugged and uneven; but when the truth is reached, it is always plain and simple. We have been often surprised to find this; and many fail to give full credit to our discoveries because the ascertained principles and truths are so plain and clear. Our views on the exciting causes of the different varieties of dental caries would have gained universal credence long ago, but for their plainness and simplicity.

MISNOMERS.

THEY are numerous in our profession, and perhaps in all others. As ours is new many of its terms must be new, and where mistakes are made and adopted, time will probably correct them. But it is doubtful if, in this respect, we have not retro-

graded during the last decade. Some unfortunate terms are held with obstinacy and persistence worthy of a good cause. Some are used as if merely to gratify and manifest the affectation of the user.

When the section, in the American Dental Association, on Dental Literature and Nomenclature, was established, we hoped for good results, and that they would be promptly manifested; but unfortunately, the section took the direction of general philology, and this so plainly that a carefully selected special committee spoke, in reporting, of the "paper on philology" which had been referred to it, and the report, which stated that not Dental Literature and Nomenclature, but General Philology was the subject discussed, was adopted by a unanimous vote of the Association. Of course then, nothing has been gained for dental nomenclature from this source in the last five years; for the so-called reports were of the same type.

We shall, therefore, have to bear for a time, with such terms as six-year molars, hear roots of teeth called fangs, suppuration called ulceration, etc. Of course we may as well yield to overpowering usage, and still speak of dental *caries*; but all such things we will endure with the patience of Job, the meekness of Moses, and the acquiescence of Paul after he had learned in whatsoever state he was, "therewith to be content," if not forced to listen to "chemism," "dentos," "pulpitis," and similar gross barbarisms. If a surgeon who gives special attention to diseases of the feet should mentally lump the various textures and tissues of the foot into a mass and call it *pedos*, all would regard him as a pedantic fool, except the few who should more politely call him an ass. Yet this term is as good as "dentos." Or if one should lump together the textures of the brain and call the result *cerebros*, or call the textures and organs of the mouth, *oros*, the fool-killer would be in demand. Our nomenclature needs revision, and improvement; but we want no such barbarisms.

ALL BROKEN OUT WITH IT.

BAD case, indeed! Might kill if it should strike in and settle on the brain, or even on the gizzard. Better drink saffron tea to keep it out. A papular eruption is bad, a pustular, worse; but

think of a titular eruption! and you must n't scratch it; and it's catching—goes through a family. One journalistic family has it. Guess the "old man" inoculated the boys—one of them in two places. The "governor" is hard on them. One has sixteen sores—pshaw! titles on him with three places marked for more, and the other is but little better. Two of the boys have left home. May be they didn't wish to be inoculated. We feared they were dead—Thrail-killed, b'dad.

"A NEW PHASE OF THE AMALGAM QUESTION."

THIS seems to display a new face in the discussion of the subject. Dr. Keith has evidently made some research into the science of electricity, in its various sub-divisions. When we came into the dental profession we found it almost totally ignoring chemistry and the science of electricity. We wrote our inaugural thesis on "Intrastomatic Galvanism" for the purpose of calling attention in the direction of electrical science. Not far from that time we heard a lecture which objected to gold clasps because they conducted the electric current back and forth around the tooth, and passing thus many millions of times in a minute, the tooth was worn away by the see-saw or cross-cut friction. Very many dentists are yet only a little better posted in electrical science, hence we thank Dr. K. for helping us out, even if he does not "pound gold" into cavities. In the meantime, Dr. K. has favored us with his "photo," and has our thanks. We hope our other correspondents will follow such a good example. It shows good taste, and no longer does Dr. K. seem like a stranger.

FUNNY? OR INSULTING?

IT is not our fight. In one sense we are not concerned. In another sense we are. All that is set forth in our periodical literature comes within our jurisdiction as a journalist. Where there is darkness, it is our duty to give light if we have it. If there is weakness, we should aid with all the little strength we possess. This is not an apology for what follows, but an explanation of our motives in noticing that which concerns others more than us. Whatever touches harmfully our profession,

touches the apples of our eyes, and our tears take shape only as they flow through our pen.

Dr. Talbot read a paper on the amalgam question, before the dental section of the American Medical Association at its late meeting. The H. editor of the *American Journal of Dental Science*, in referring to it, remarks: "It is doubtful if Dr. Talbot would have the courage to read such a paper before any reputable dental association, and if so, and he be at all sensitive, he would speedily wish to be elsewhere." How long since H. lost sight and hearing? or has he been out of the country? or was he repeating the Rip Van Winkle experiment? Does he not know that Dr. T. read "such a paper" at a meeting of the Illinois State Dental Society, and still lived? Why should a medical society treat him more mildly than a dental? This is the funny part of the article of Dr. H.

In closing, the H. editor says to his correspondent: "If he could step suddenly into Dr. Talbot's office we have little doubt that he would surprise him in *flagrante delicto*, the very act of poisoning his patient, apologizing for it by saying that he was very careful, only using the purest materials," etc. Is this insulting? or is it legitimate journalism for an editor to charge with falsehood and dishonesty — to endeavor to blast the private character of a writer, when unable to answer his arguments, or respond to his facts? Dr. Talbot can take care of himself; but we dislike to see professional journalism dragged down in the dirt.

A CASE IN PRACTICE.

THE Connecticut Valley Dental Society held a meeting in June last, and we see some interesting ideas from it reported in the *New England Journal* for August. Take this:

"DR. STEBBINS: I would like to ask if Dr. Vincent could explain and give an account of the little girl who was once brought to me with a swollen face. I think the left inferior second temporary molar tooth was giving trouble. The physician wanted the tooth extracted. The tooth was extracted and *the germ of the bicuspid was in the abscess sac.*"

The italics are the OHIO JOURNAL'S; and "One of the Few" was there, and we suppose the dental periodicals will get a universally original article.

UNANSWERED LETTERS.

It would afford us real pleasure to be able to answer all the private letters sent to us. But with the strength of Sampson, the energy of Paul, and the patience of Job, it could not be done. Sometimes we try to answer a whole batch of them in a single effort through the *Journal*. We shall now give a specimen of one of the most reasonable lately received, and the writer will think that we could have answered, at least some of his questions, while writing this, and he will think truly. But to do so would not explain our predicament. We suppress names, and wish to give no hint as to authorship, and the writer will not think hard of us; and he need not, for he has done no harm. This is the letter, without stamp:

“DR. WATT.

If I can do so without causing you too much trouble I should like to ask one or two questions upon subjects upon which I am very much interested. I wish to be better satisfied as to the action of Nitrous oxide; does it enter the Blood as Nitrous oxide or does it give up its oxygen to the blood.

Why do the lips some times become dark, and would it be advisable to give it to a person affected with heart disease and subject to fainting, I have in mind a lady inclined to heart disease (have not seen her myself) faints at slight scare or pain, would it be best to give it to such persons. There are many questions I should like to ask but fear I am trespassing. Can you give me your opinion or cite me where I can find it. What do you regard as the best work on Nitrous Oxide, or general anæsthesia. One other, is there any process of working celluloid (attaching teeth to gold plate) so that it will retain its form and color.

Pardon me for asking so much; any information you may find time to impart will be gratefully received by

Yours Respectfully,

For a young man to ask such questions shows thoughtfulness. These are practical and important questions, and we would get out one number of the *Journal* more easily than we could answer them.

The next day a young man wants a spicy lecture on dentistry

prepared for popular distribution, so as to gain him patronage when he opens an office, and asks us to prepare it for him, promising to do anything he can for us.

We shall certainly have to decline, as we have lost our spice, and so cannot be spicy. But really we sympathize with these young men and others like them. But boys, be self-reliant. Write your lecture yourself: and you, of the catechism, study out correct answers to these questions, and you'll find yourself famous. Some of them are in dispute. Settle them for us, by your own independent study, if it "takes all summer," and we shall all bless you. If we had the time and strength to spare we would answer your questions, write a spicy lecture, or try, and do very many things besides, but it is not safe for you to wait for us to help you. Now you know why we can not answer all your letters.

Correspondence.

"I charge you that this epistle be read."

Editor of the Ohio State Journal of Dental Science:—

THE relation of dentistry to medicine, which is exercising so many dear good souls, and the effort that is being made one way and another, to hitch dentistry to the tail of the great medical kite, and supply to the members of our glorious profession a big M. D., would seem to indicate that we have gone all wrong, and that something must be done to set us right. The dental colleges are criticised for the scores of half-fledged and incompetent young men it is claimed they throw on to the profession each year. The course of study as laid down, is too great for the time given to it. The term for graduation should be three years at least, and better four years. This, it is said, would tend greatly to elevate the standard of education. One finds a panacea for all our ills in an edict to be issued forbidding the colleges to teach anything pertaining to mechanical dentistry. Another, more conservative, is willing that anything and everything may be taught, but that the student shall have his certificate or diploma for just what he is competent to do. That is, we should have for the student who has acquired the requisite skill in making rubber plates, the "rubber dip."; this, it is presumed, would be slightly

elastic. Then we should have the celluloid diploma, the continuous gum diploma, and the gold plate diploma, (this should be gilt edge). Applying this plan to operative dentistry as well, we would divide and subdivide. Thus, we would have the amalgam diploma (in black); the oxychloride, oxyphosphate and gutta-percha diploma might be included in one. Then we would have another for the gold filler. In certain cases, when the student had acquired a sufficient skill in the use of all of these materials, there might be issued to him the "Stuffer's Diploma." We would have a diploma for oral surgery, another for general surgery, for dental medicine and general medicine; and thus we would go on elevating the standard of dental education till we would have dentists capable of tackling a case of chronic diarrhoea, or holding an autopsy to determine the sanity or insanity of some ill-fated Guiteau by post-mortem examination of his brain.

Now we are informed some such plan as indicated above is about to be inaugurated in Chicago. One can not help thinking of the confusion likely to arise in the minds of the dear people by the adoption of this system of graded dentists. It is probable the system of teaching in our dental schools is open to improvement, but no system of teaching is likely to succeed with a certain class who seek to enter the profession. The trouble lies further back.

Colleges and preceptors should exercise greater care in the kind of young men they take as students. The preliminary education is often so defective as almost to preclude the possibility of reaching any high degree of scientific attainments, and the manipulative ability of the student so deficient as to make the mechanical and operative parts troublesome and unsatisfactory, if not miserable failures. Right here is where reform should come in, if it is to come at all. Dentists sometimes say, but who ever heard of a dental college turning away one per cent. of students applying, because of deficient preliminary education? Nor are they alone; for we have yet to learn if the medical schools, through whose doors we esteem it such a glory to have passed, are any more particular as to the acquirements of the students they accept. The stream does not rise higher than its source; and if we want an educated, high toned, and honorable profession, we must see that only educated, high toned and honorable young men enter it.

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“A word fitly spoken is like apples of gold”—SOLOMON.

INFLAMMATION.

BY GALEN, XENIA, OHIO.

(Continued from page 262.)

IN the first paper on the above subject, it will be remembered by the readers of the JOURNAL that we were discussing the cause of *congestion* or retardation of the blood in inflamed vessels, the fact having been stated that the *lymph globules* of Müller are the first active signs of retardation of the current that we observed. To pursue the argument further, we say that the elliptical disc is rarely seen adherent to the sides of the vessel, and whenever it happens to be arrested in its course it is found entangled with, or by, the adherent round globules. The effect of mechanical irritation or injury, is here seen to the best advantage. By pressure on the web of the frog's foot with the finger, partial stagnation is produced in the smaller vessels, and when this yields to the returning current, the walls of the vessels are seen studded here and there with white globules, while may be seen, rolling among them and over them, the same kind of discs. Any irritant, capsi-

cum for example, produces the same result. In the rapid flowing of blood these applications cause the minute globules to move slowly, and as the arteries contract and the general current is lessened in its course, the number of these globules is increased, the motion becomes slower and slower, till they finally adhere to the sides of the vessel. If the stimulus used is increased or applied for a long time, and adherent white globules become very numerous or stick with great pertinacity, then the *red globules* are prevented from passing, and if the impaction be sufficient, the uniform red color of *congestion* is observed.

When stimulation is moderate and applied uniformly, stagnation takes place in anastomosing veins, where the current must be naturally slow and the direction varying; but when a strong stimulus is used, the retardation is seen at the point of application and is usually immediate and well defined. It has been observed that the red corpuscles are less concerned in obstructing inflamed vessels than the white ones, for they are seen twisting and choosing their way, so to speak, through the obstructed path, and seem to avoid contact with the white corpuscles till the avenue is so obliterated that any further advancement is impossible in their course. The pressure from behind wedges and forces them against the sides of the vessel and themselves till a uniform red color is seen, the *liquor sanguinis* having filtered through. *This is the period of total obstruction.* We are able to say that an essential part of inflammation is the production of white corpuscles in inflamed vessels, and that obstruction is due mainly to the adhesive properties of these globules. We must bear in mind the fact that in the history of inflammation and nutrition, that *white globules* are produced and that they seem to be the direct result of an irritant.

Any circumstance that causes determination of blood for any length of time where congestion is present, will produce white globules, and hence inflammatory action may ensue.

The complete obstruction of the capillaries by this mass of white globules, *liquor sanguinis*, and red corpuscles takes place when the inflammatory action is severe enough; and, coupled with this condition, we have, for a less irritant, an increased vascularity that does not produce total obstruction, but an enlargement of the capillaries, veins, and arteries. We might call this latter condition simple determination of blood, but it differs from

that produced by a transient cause in the motion of the capillaries and veins moving slower and with more force. It is quite possible that this process takes place in the lowest forms of inflammation; an example is seen in very young frogs. From the foregoing, we are to conclude that the most essential characteristic of inflammation is an increased motion or determination of blood to the affected part, with more or less obstruction to the flow through the part. The increased motion is expended in the arterial portion of the dilated capillaries and into the collateral branches supplied by anastomosing vessels.

The reason for the obstruction of the vessels in an inflamed part, is in part the increased mass in the smaller vessels and diminished elasticity of their coats, and in part the formation of white corpuscles which adhere to the walls of the vessels, and also to themselves. Of the exciting causes, direct irritants produce obstruction in both those acting indirectly causing congestion, and when determination of blood is added, the inflammatory process begins. The effect of these essentials, in inflammation, is to expend much of the circulating force conveyed by the arteries on their capillary terminations in the enlargement and twistings of these capillaries, with the production of white globules that adhere to the sides of the vessels and the total obstruction by the same means. These progressive steps seem to be nature's method of directing the force of the circulation to that portion of the vessels by which the process of reparation and nutrition is carried on. One of the effects that is produced by this local direction or determination of force, is the supply of the life giving element, oxygen, to the young plasma and the resulting formation of a deutoxide of protein, *i. e.*, fibrin.

We have found that an inflamed part is the seat, first of determination, followed by congestion or obstruction; it is this combination which leads to the changes that characterize inflammation. The determination of blood to or near obstructed vessels, increases that obstruction and causes it to become more permanent. The congestion is also affected by this determination, and we see it more plainly and more clearly marked than in common congestion, because it is affected by this continued force of blood acting physically and chemically upon it. These circumstances show that the natural functions of those vessels must be much modified, and that those modifications or physical

changes differ in different portions of the inflamed part. Hence, in vessels whose channels carry an increased quantity of blood, the functions will be more or less excited, and in those where we have obstruction, the vital properties will be impaired. It is owing to the approximation of two such opposing conditions: excitement, and interruption of living actions in the same part, that renders inflammation, when continued, of so much importance.

We have in this condition, destruction, not only of function, but part as well.

A CASE IN PRACTICE.

BY DR. J. B. TULLIS.

ONE year ago Mr. H. of this city brought me his daughter ten years of age to have some teeth extracted. I observed the right lateral incisor was growing directly across the arch, as though it had been turned on purpose to grow in that way. I called Mr. H's attention to its position, and he said pull it out, I don't want it that way. I told him it could be moved into line, and remain, as it was one of her permanent teeth. He said then, if you can, "fix it." The approximal surface next to the central incisor was thrown up, and was the labial surface of the tooth. I proceeded to change the position by taking hold of the tooth with a pair of strait beak forceps, and gently rotating the hand, found it was not attached to the process. I moved it gently, and then bathed the gum with a little camphor, and continued daily to move it, watching to prevent inflammation. In a little over one week I had the tooth in line, no pain given to the patient, or inflammation to the parts. I did not ligature the tooth, or use screws. I saw the patient a few days ago,—the tooth in its proper place, no one could tell it had ever been changed. This was better than extraction, which would have disfigured her very much and would have proved a permanent loss of a valuable tooth for one on a plate.

I think if children's teeth were looked after in due time, we would see fewer irregularities and more sound teeth. How to

reach the masses is a subject difficult to solve. The profession can do much by calling the attention of parents to the subject.

REGULATING TEETH.—A CASE IN PRACTICE.

BY PROF. GEO. W. KEELY, OXFORD, O.

THE following case, No. 1, shows the arrangement and articulation of the teeth of a lady thirty-five years of age, as she was presented to me in 1876. She had retained the right superior deciduous canine till she was twenty-five, when the permanent one was erupted and locked inside the inferior teeth, before its predecessor was extracted.

The lady had a short upper lip, and when conversing exposed the ten anterior teeth. The disfigured side was considerably depressed, and spoiled the expression of an intelligent face. She first came to me to have some teeth filled, when I told her that this refractory tooth could be moved outward, and into its normal position. She then told me it often felt as though it was trying to get out of its unpleasant predicament. When she informed her husband (who is an M. D.,) what I proposed to do for her, he said, that could not be done, as several intelligent dentists had told him that after a permanent tooth was fully erupted, its position could not be changed. He came to see me and told me of his skepticisms. When I showed him models of cases I had treated, he at once told me to perform the operation regardless of expense.



Figure 1.

The fixture I used in this case, consisted of a vulcanite plate, as is illustrated in figure 2. An accurate model was obtained,

and trial plate fitted, running over the bicuspids and molars when the bite was taken, leaving the offending canine room to swing clear in its passage to its normal position, as also to furnish a masticating surface on the plate.

The point of this canine reached nearly to the proximal surface of the central and lateral. The palatine surface of the plate was made thick, and a slot cut to receive a wedge. The vulcanite band reached around in front, and rested on the lateral. A strong ligature, cut from rubber tubing, was put on the tooth, and attached to the button in front. The plate was removed daily and cleansed, and the lady brushed her teeth. A new wedge and ligature were adjusted as often as necessary—the first wedge being of “seatangle tent,” and after, of well compressed pine.

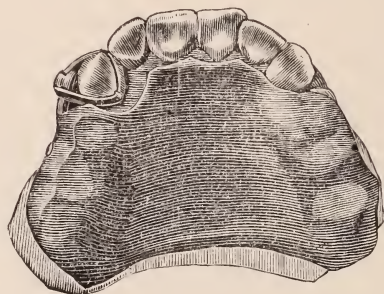


Figure 2.

On the morning of the fourteenth day, the tooth was in position as shown in figure 3. A retaining plate was made and worn for about three months. During the operation there was no inflammation, and but very little soreness. The improvement in expression and contour was very marked.



Figure 3.

ABOUT IMPRESSIONS.

BY DR. U. SMITH.

AN impression from which can be moulded an exact model of the alveolar ridge and the palatine arch would be called an accurate impression. So it is. From the model so obtained, in the judgment of most persons and even dentists, can be made a perfect fitting plate or denture. Often it is that dentists, as well as the wearers, are sadly disappointed on the result of dentures made on the exact-fitting principle. When such unexpected results do occur, as they frequently do, the wearer will attribute the fault to the maker, and the maker to the wearer's want of perseverance and patience. My lengthy experience has taught me that an accurate impression is one thing, and a suitable impression to make a close fitting and a permanent fitting denture from, is quite another. Alveolar ridges and palatine arches differ in structure as much as individuals differ in form. Therefore, a kind of impression that would be suitable in one case would be entirely unsuitable in others.

With plaster of paris, the most accurate impressions can be taken; but they are, for the mechanical dentist's purpose, the most inferior known. It is not the desideratum to have a correct impression, but an impression from which can be made a model on which can be moulded a plate of adherence and lasting utility. This can rarely be done with plaster of paris.

Now let us come to virtual practice. Probably all alveolar ridges and palatine arches are of unequal density. The dentist should, *a priori*, pass his index finger over every part that he wishes to modelize, to ascertain the relative softness and hardness of the mucous membrane; then prepare his impression material of beeswax, or modeling composition No. 1. I generally use the latter. To correspond to the part to which it is to be applied, if the ridge and arch are generally of hard membrane, the impression material should be used quite soft; if relatively soft in places, then the impression material should be applied of harder consistency, and pressed vigorously against the soft membrane, for the purpose of pressing it down as much as possible. Then keep it so pressed until the impression material hardens, which it seldom does under three minutes. Then remove it carefully, by degrees.

If the mouth is rinsed with cold water, just previous to taking the impression, the removal will be easier. From an impression so taken a good working model can generally be made. The denture will press mostly, for the first few days, upon the softer membrane. This will soon settle down, and cause the plate to press equally upon every part, a lasting result is the consequence. The inequalities of the consistency of the membrane are so great, in many cases, that it is necessary to scrape down to the thickness of a line or so the very soft places on the model representations. If those precautions are not taken, trouble, especially with atmospheric dentures, will ensue. Atmospheric dentures made from plaster impressions will go well for a brief period. Soon they will press, mostly on the hard membrane, and lightly on the soft. Difficulty will then be encountered to maintain them firmly in place. Such annoyances are evaded by observing the method above described.

IRREGULARITIES.

BY DR. G. L. SIMPSON, ALLEGHENY, PENNSYLVANIA.

Mr. President and Gentlemen of the Odontological Society of Western Pennsylvania:

THE subject of this paper was not of my own choosing, and when I came to consider what might be expected in a paper on "Irregularities," my perplexity was very great, for as I turned the subject over in my mind, I discovered that it opened numerous fields for consideration, and nothing indicating to which of them I should direct my thoughts, save only the fact that I, being a practitioner of dentistry, and dealing principally with the organs of mastication, should turn toward that gateway beyond which stand the scattered monuments of hereditary congenital irregularity, or the terrible effects of thumb, finger, or tongue sucking upon the dental organs, as we see them here and there, within, without, or on both sides of the dental arch, or not in the arch at all.

Throwing all other subjects aside, I will ask you to bear with me for a few minutes in my weak effort to consider irregu-

larities as found within the oral cavity, viz.: the abnormal position of the teeth.

The causes of irregularities, I believe, are conceded by all to be various. While some may be inherited, more are the effect of that worst and most prevalent of all bad habits in children, that of sucking the thumb, the fingers, or the tongue. Again, the neglect to remove in proper time a devitalized, deciduous tooth may result seriously. There may be and are other causes, but enough have been mentioned for all the purposes of this paper.

It is a matter of regret that the injuries resulting from the causes to which we have referred, are, to a great extent, beyond our power to prevent, for, as a rule, they do not come under our notice until after the mischief has been done. Nevertheless, it is the duty of every dentist to instruct mothers (whenever an opportunity presents) relating to the necessity of giving early attention to this habit, and of completely breaking it up even though they might have for a time to bear with the discomfort occasioned by the squalling and screaming of the child. Much instruction might, at the same time, be given to those who have the care of children, that would be of countless value in leading to the use of means for preserving the dental arch in its normal shape, and for assisting nature in building up a thoroughly organized set of teeth. I will not take space here to enumerate the deformities produced in the disfiguring of the nose, lips, teeth, and chin by using the thumb and fingers as soothing syrup.

Granting that we have a case of irregularity, we will consider the physiological action that takes place in the movement of a tooth from one place to another, for it is not a bending or warping of the alveolar process, nor like a post in a hole against which some one pushes, bruising and forcing away the earth on the one side, and then tramping in of anything on the other to fill up; but it is a process of absorption on the one side, and an ossific deposit on the other, an actual carrying off into the circulation of waste material from before the moving tooth, and the filling up of the space left with entirely new material. Pressure upon either hard or soft tissue, if not excessive, will bring about a physiological action in the absorption of tissue acted upon, but if the force applied should be too great, it will produce a pathological change resulting in the death of the parts and in the movement of a tooth occasioning the loss of that organ, or at

least for the time defeating the object for which the force was applied.

As absorption makes way for a tooth as it moves, so the space left behind the tooth is filled up by the exuding or pouring out of a plastic fibrin or plasma, induced by the slight inflammation caused by the receding tooth.

As in a wound of the soft parts this kindly fluid is thrown out which, in a comparatively short time, forms that particular kind of tissue that was destroyed, so in the osseous, the fibrin becoming organized, forms cartilage, and later (requiring more time than to form soft tissue) becomes thoroughly organized, forming that particular kind of bone found in the alveoli. But as this requires time, varying in the subject, in some ossification taking place very rapidly, but in the most favorable cases it will not do to trust a tooth that has been moved to stand without support, as the strong tendency to return to its former position, causing pressure upon this newly formed cartilage before it has become bone, absorption will take place.

As intimated before, the pressure used in regulating teeth must not exceed a certain limit, and the best guide we have is pain, always stop short of this. It has been said that "pain is a great evil." I think that pain *may be* a great blessing. It warns us of the danger that threatens when the force applied to a tooth is too great. It often informs our patients ere it is too late, that decay is doing its work, and through fear of pain in extracting the offenders, they have teeth filled that otherwise would be lost. Pain sometimes also tells us of needed rest, yet I will confess pain is not all a blessing, it has its disadvantages. The pain experienced by the operator may be as great if not greater than that of the patient, nevertheless, it is often our duty to undertake the most difficult cases, for the health of the patient is often impaired by the want of proper occlusion. Again, irregularities have a tendency to produce decay, as the teeth cannot be properly cleansed. When the teeth are crowded in the arch, one tooth lapsing over another, thus forming lodgment for particles of food, every dentist is familiar with the results.

This is only one of the many serious objections to the neglect of this class of patients. A case came under my care, some years ago in which all the teeth were in their normal position except the two superior central incisors, but they were so

far depressed within the arch that when the mouth was closed the lingual portion of the cutting edge of the lower teeth rested against the labial surface of the two superior central incisors more than half way up the teeth, and in the act of biting wearing the enamel from the cutting surface to that height, disfiguring the teeth, and would have eventually resulted in their destruction. In order to overcome this trouble (it being necessary to block the teeth apart for a time), I made a plate of vulcanite, with gold clasps around the two first bicuspid, then allowing the rubber to extend up over the second bicuspid and molars. This served as a gag, and at the same time made mastication possible. The plate just back of the incisors was made thicker than usual to admit of holes being drilled. Into these holes every third day I placed a piece of dry burnished wood. One tooth requiring a little rotating, against this tooth I placed two pieces of wood, one longer than the other. This worked so well that in six weeks' time I removed the blockade from between the teeth, and in four weeks more I removed the plate, leaving the teeth to the care of articulation, which, thanks be to it, has performed its part well. Although I used a rubber plate in this case, and have done so in other cases, yet contrary to the general practice, I prefer to use a swaged silver plate; it being thinner is less objectionable to the patient, and in my experience is every way preferable. With a blow pipe attached to the foot bellows, it is but little trouble to make any desired change. If you wish a loop through which to pass a ligature, a hook for a rubber band, or a shoulder for a bolt and nut, all can be completed in a few minutes and at any time. In a number of cases of very prominent cuspids, where the six year molars were badly decayed, I extracted them. The second molars being very short, could not assist in bringing the erring cuspids to place, so I used a silver plate with four loops, so placed that when ligatures were thrown around the cuspids and first bicuspid, they had the effect of holding the plate in position, and, at the same time, drawing the bicuspid back and drawing the cuspids backward and inward. It will sometimes be necessary to place a wire or ledge opposite the teeth around which the ligatures are to be placed to prevent them from impinging upon the gums. I use for ligatures spool embroidering silk, E or E E. I use ligatures in every case where it is possible, preferring them to rubber bands, or even

bolts and nuts. Teeth standing inside of the arch can be (if there is space sufficient) readily brought to place by the use of a band around the labial and buccal surfaces of the teeth, and for this purpose I use ten karat gold wire.

To each end of this wire solder a piece of flat gold or silver. By punching holes through these the band can be made fast to either the bicusps or molars with light platinum wire or gold bands and nuts. Then draw the teeth out to position with a waxed ligature. My reason for using ten karat gold wire is that it is stiff and strong even when very light, answering every purpose, and its appearance is less objectionable than that presented by a flat band of twenty karat gold.

With a little care in forming this band, teeth can often be rotated very nicely with the ligature. For more difficult cases, take a thin ribbon of platinum and form this around the tooth to be rotated, allowing both ends to extend out some distance side by side, then double back on itself; solder this, flowing the gold all over the outside of the band, then you have a band with a handle to it. Drill a hole through the point of this lever, and, with a ligature, you can turn any tooth that you might wish; but great care must be exercised not to do the work too rapidly.

A few months ago a young lady called upon me to see if I could do anything for a lateral incisor that was very loose. A dentist, several years ago, in attempting to rotate it, turned it more than half way around in one day and night. He became alarmed, and removing the appliances the tooth retraced its steps, but never to become firm as all vital connection between the tooth and its home had been ruptured, and, absorption of the root taking place, it sooner or later must be banished, and the sooner the better. Even if you don't devitalize the tooth its usefulness is often impaired by careless or hasty movement. After any change in the apparatus it should be watched with care for some days. I have given only a few simple modes of regulating, as it would be useless to attempt to describe the numberless appliances of hooks, plates, screws, pulleys, blocks, and tackles used in the correction of irregularities. But a little care and thought in the construction and adaptation of those given, with here and there a slight variation, almost any case can be regulated. As there is "no royal road to learning," neither is there to success in the treatment of irregularities.

THE ORIGIN AND PHYSIOLOGY OF NERVOUS FORCE.

BY W. C. BARRETT, M. D., D. D. S., BUFFALO, N. Y.

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THERE are two things of which I wish to speak, and these two things make up the sum of the whole universe so far as man can know: they are matter and force. I say the study of these must form the whole, the entirety of human research, so far as any positive knowledge or the hope of definite information is concerned. We may speculate and theorize and dogmatize upon things spiritual and metaphysical as much as we like, but concerning them we can by no possibility arrive at any definite conclusion, nor can we *prove* any assertion, it matters little how wild it may be, as either absolutely true or false. When we come into the domain of physics we are studying the actual, the real, the tangible.

I desire, then, for a few moments to consider, in a general way, matter and force—the one real, positive, palpable, inert; the other immaterial, etherial, incorporeal, yet dominative over the tactile mass; a law which is ever active in bringing about definitive changes in the passive matter; a ghostly, pervading something, which changes a dead, a lifeless, an inanimate mass of chaos into this world of life, and joy, and beauty, and animation.

What is this mysterious influence that we call force? Let us examine it. But in what I shall have to say I desire it ever to be borne in mind that I am speaking solely of physics, and that it has no kind of metaphysical or speculative application whatever. The relation of mind to matter it is no part of my present plan to endeavor to trace out.

Force can be studied only through its chief resulting phenomenon—motion. We find that matter and force are infinitely opposed. Matter seeks eternal rest; force, perpetual motion. They mutually react upon each other, matter being by force constantly changed in its characteristics, force by matter continually varied in mode of manifestation. They are thus mutually interdependent, co-existent, eternal parts of one stupendous whole. Interdependent, because one cannot form a portion

of this universe without the other; co-existent, because each pervades the other, and eternal, because both can die only together.

It has long been an axiom in physics that matter is imperishable. The same train of reasoning which proves this, establishes also the fact that force is indestructible. If an atom can change its condition only through the exertion of force, if its form only can be altered, the bonds which unite it to certain other atoms only be liberated to enable it to form new unions with yet other atoms, and if not one of those particles can be lost or annihilated, then can force only, by the reaction of matter, be induced to change its mode of manifestation or its direction. If not an atom has ever been destroyed since matter existed, then it necessarily follows that not an influence, not a wave of force, has ever been extinguished since, simultaneously with matter, it first exerted sway. We may, through the action of force, alter the condition of matter; we may, through the reaction of matter, change the character of force; but both are alike indestructible and eternal. Matter is all one, under whatsoever form it may exist. Force is a unit, however it may manifest itself. These are predicates, truisms, self-evident, self proved, fixed laws of physical science. This doctrine is not new, for as long ago as 1845, Faraday declared that he held the opinion that the various forms under which the forces of matter are made manifest have one common origin, and are so mutually interdependent that they are convertible one into another, and possess equivalents of power in their action. To my apprehension, matter and force are as intimately connected as are what Faraday calls the different manifestations of force with each other. We cannot conceive of matter except as it be subject to force. We cannot imagine power as distinct from the matter upon which it acts. They are essentially co-existent, coeval, synchronous.

Force may act upon matter in different ways, and the result may be motion of a mass, or of atoms. The changes consequent upon this action may be those of external form—morphological—or of internal structure—molecular. According to the peculiar manifestation of it we have been accustomed to call it Heat, Light, Electricity, or Chemical affinity; but in whatever mode it becomes sensible to our preceptions there is one definition which will always describe it, one expression which always characterizes it. It is essentially matter in motion. Heat was formerly re-

garded as a subtle substance, with unknown, tangible qualities, and its specific name was *Caloric*. It was, with Light and Electricity, classed as an imponderable fluid, because it was conceived that no other hypothesis would account for the phenomena which it exhibited. Light, it was supposed, consisted of minute characteristic particles which proceeded from the sun, or from any luminous body. Electricity also was regarded as an invisible entity of some kind, possessed of peculiar qualities. It was known rather by its physical manifestations than from any knowledge of its character, but the general opinion held it to be an extremely tenuous matter, which, while pervading most substances, could yet be bottled up, confined, or dissipated at will. It was usually spoken of as the electric *fluid*, and in my early school days I was taught that there were two kinds of electricity—a positive and a negative—which were always seeking to neutralize each other. Further study and investigation made manifest the absurdities of these crude theories, and a new hypothesis was invented—that all these supposed entities, these actual, positive existences of some kind of matter called light, heat, etc., really acted through a specific media—a fluid which pervaded all matter and all space, an invisible, intangible ether, which, once put in motion by the action of light, heat or electricity, had sufficient power to produce all the violent phenomena which were supposed to be the effects of these agents, and this hypothesis is held by most people to-day.

Count Rumford disposed of the material theory by immersing two iron or steel bodies in cold water, and then, by the friction or attrition of the one upon the other, gradually raising the water to the boiling point. This was the initial attempt at removing the consideration of the study of force from the domain of metaphysics to that of physics. Prof. Grove first publicly announced the modern theory that the so-called imponderables—light, heat, electricity, etc.—are peculiar states of ordinary matter; that they are resolvable into motion, and that they are, in fact, all very closely connected, and the new doctrine was denominated the Correlation of Physical Forces. The theory was taken up by others, the real nature of the so-called forces was studied, and the further proposition was enunciated that they are all mutually convertible into each other. It was necessary in the consideration of these forces to study them in their manifestations, to compare

them with other physical phenomena, and note their resemblances or their discrepancies. It has been determined that most, if not all the forces, progress by means of an undulating or wave-like motion, not unlike the advance of the concentric waves made by casting a stone into a smooth body of water. This hypothesis is firmly established as regards sound, not only by actual measurement of the vibrations of resonant bodies, but by the very structure of our own auditory apparatus.

The vibrations produced by light have not only been demonstrated, but accurately measured. And not only this, but it is very clearly shown that the different colors of the solar spectrum are produced by a definite number of vibrations upon the retina of the eye. Further, the very number of these wave-like beatings have been ascertained and counted. The most delicate, but at the same time the most determining experiments have been conducted, and these demonstrate that to produce the color at one end of the solar spectrum, red, 480,000,000,000,000 of these vibrations must impinge upon the retina in each second; while to produce violet, the color at the other extreme of the spectrum, the number of vibrations per second is no less than 720,000,000,000,000.

The same arguments which are applicable to the undulatory theory of the progress of light, are equally pertinent in the consideration of electricity, for its mode of progression has been shown to be nearly allied to that of light.

And now let us for a moment consider the characteristics of some of these forces. Sir Humphrey Davy says that the immediate cause of the phenomena of heat is motion, and the laws of its communication are precisely the same as the laws of the communication of motion. We know that all molecular movement is accompanied by the evolution of heat to a greater or less degree. This is equally true whether it be of the changes incited by what is known as chemical action, or the motion induced within the mass of iron upon the blacksmith's anvil. We also know that the same molecular disturbance generates what is known as electricity, and that both these elements are operative in inducing that change sometimes called chemism. It is equally true that each of these forces is convertible into any of the others. Thus, if we commence with chemical action, we all know how, within the cells of the battery, this action is made manifest in the electrical

current, and thus chemical force is converted into electrical force. If, now, this force be generated in sufficient quantities and conducted along a wire of sufficient size for its easy transportation, and if in this "circuit" a piece of small platinum wire of such size as to partially obstruct the "current" be inserted, we all know that the platinum wire soon becomes red hot, and we see an instance of the conversion of electrical force into heat. The galvano-cautery is an instance of this. If, now, the current be increased and the obstruction be entire at one point, the most dazzling radiance is manifest, and here we have an instance of the conversion of electricity into light. The electric light is an illustration of this.

Here, then, commencing with that simple molecular disturbance within the battery, we see the force generated by those movements manifested first as chemical action. This is converted into electricity, the electricity into heat, and the heat into light, and all without the addition to or the subtraction from the original force as first made manifest, of anything whatever. This proves conclusively that whatever name we may give the phenomena exhibited, they are all due to the same cause, have the same origin, are convertible the one into the other, are in fact all the same thing, differing only in the mode of their manifestation and the accompanying phenomena.

The sun is the great source of light and heat for this earth. The so-called rays of the sun may be made manifest to us in many different ways. If, for instance, we take our stand with that body exposed directly over head, its influence is chiefly exhibited to us through that which we call heat. But we may interpose between us and the sun crystals of alum, and these will intercept those undulations which are known to us as heat; or, in other words, it will so change the character of these vibrations that the sun's influence is no longer manifest to us as heat, but the heat rays have become light beams. In other words the heat is converted into light. Again, we may interpose another substance and there is neither heat or light in the sun's influence, but its rays now induce those molecular changes which we know as chemical action. Thus the same ray of the sun may be changed and made manifest to us as light, heat, chemism and electricity.

Force, then, is but a mode of motion, and according to the manner in which it is manifest to our senses we call it by the

names which I have considered. But force may remain latent for an indefinite time. In my school-boy days, when we considered heat or caloric, we called it either sensible or latent. Further study will teach us that such terms are the result of our lack of understanding of the subject. There may, in one sense, be such a thing as latent force, but heat is only a method of the manifestation of force. The sun, as I have said, is the origin of all force, because within its body certain changes were originally organized and put in motion, whether by Omnipotent Power, as our system of theology teaches, or by inherent qualities, as materialists claim, matters not in this connection. These molecular changes are the origin of the unit force. The effect of these changes is eternal, imperishable, indestructible. But they are not necessarily incessant. They may be stored up, imprisoned, only to be liberated through the transference of some other influence, as thus: In the early carboniferous ages, the force liberated through the changes going on within the sphere of the sun being manifested upon the earth as light, heat, and chemism, induced certain molecular changes here, which resulted in the new combination of the elements of matter then existent, and the consequence was an extraordinary organic growth, and the formation of the carboniferous forests. The continued force which has its initial point in the sun, still active, but modified by previous changes of the same matter, and by self-limiting, envioning circumstances, finally resulted in those immense carbon deposits which to day form our coal fields. The coal which burns in my grate is but the imprisoned force which was originally derived from the sun, and which came in the form of light, heat, electrical and chemical changes. For the proof of this we have but to subject it to favorable influences and there will be returned to nature the same identical light, heat, chemical and electrical forces which so long ago lay inactive, dormant, latent, imprisoned within the coal bed. It is capable of demonstration that the amount returned is the exact amount so long ago received from the sun. But the light, heat, etc., or in other words the force liberated in my grate, is not lost or wasted, but is absorbed, appropriated, perhaps imprisoned within other masses of matter, to be in turn again yielded up, and again utilized. Or, it may be, the force so eliminated from the coal is at once made manifest in some other mode of motion, and

thus transmitted on, and on, now exhibited as heat, now as electricity, and again as light or chemical affinity.

I might enumerate innumerable instances wherein one manifestation of the unit force is changed into another. I might speak of the heat, the light, and the electricity, which in various ways accompany or are the result of all chemical action.

I might show that electricity, and light, and chemical action, are ever attendant upon the development of heat, and that heat and light, and electricity, are the accompaniments of the development of chemical action; but it is all summed up in the declaration that all movements of matter, in whatsoever way they may be brought about, are producers of the unit force in some one or more of the methods of its manifestation. I cannot open or shut my jack-knife without the evolution of heat and electricity in greater or less degree. If I bring the blade of my knife in quick, sharp contact with another substance sufficiently hard and brittle, heat and light are made evident to the senses, as in the use of the flint and steel.

The evolution of force and its methods of manifestation, are controlled by definite laws which are as yet in a great degree unknown to us. Prof. Grove says, that the law or rule as to the production of heat or electricity from friction or percussion is, that where the mutually impinging bodies are homogeneous, heat is the consequence; but where they are heterogeneous, electricity is evolved, although either is in a greater or less degree the constant accompaniment of the evolution of the other. In fact, it is true that the production of one force or mode of motion is, as a rule, accompanied with more or less of the others. The beautiful photographic process, which is but the conversion of light into the molecular motion commonly known as chemical action, is accompanied with the evolution of heat and electricity, though in quantity not appreciable to anything but the most delicate apparatus. If I bend a poker across a chair back, the molecular disturbance of the iron, if it be measured by thermometers and electrometers of sufficient delicacy, will distinctly show an alteration in temperature and electrical condition; and this is true of every change in the relative relation of the atoms which go to make up matter.

Matter is composed mainly of four simple elements: oxygen,

hydrogen, nitrogen and carbon. Of these four, three are gaseous, and their atoms move freely, and with little friction. Many of the compounds of these elements are what is called allotropic or isomeric—that is, two bodies are composed of exactly the same number of atoms of each element, and yet they are totally unlike, because the relation of the atoms is not the same. Thus the oils of turpentine, lemon and juniper, are chemically the same, yet physically different. So that it is seen that very slight atomic or molecular changes produce wide divergencies in the character of compounds. Then, too, there is abundant opportunity for such changes to be brought about by a very slight exertion of force. The compounds of nitrogen (and this includes all the so-called albuminoids) are very unstable, and are ever seeking for some more permanent union. The exhibition of the slightest force is sufficient to induce a disruption of imprisoned chemical affinities which may result in wide changes.

Again, compounded matter exists in a number of forms, as gaseous, liquid, and solid. Of these the first two are easily impressed, and molecular changes are constantly going on. Solid matter exists in two different states—the colloid and the crystalloid. Of these the first is unstable and exceedingly mutable. So that of all the forms in which matter exists there is but one in which it is not easily changed and made to assume new molecular conditions. We have shown that every molecular disturbance, however induced, is followed by the evolution or the transference of some one or more of the various manifestations of force. Given then, that most forms of matter readily undergo molecular and other changes, and that the manifestations of existent force, such as light, heat, chemism, etc., are constantly active, and that such action can by possibility only result in still another transference of force, it may readily be seen how unceasing must be the phenomena presented by all these mutations and mutually induced changes. Every wave of force exerted at the initial period of this universe has been, since that time, and will ever be existent, and either constantly, actively excited, or passively imprisoned by superior force. Matter is, under the action of force, constantly being disintegrated, and its constituent particles built anew into fresh forms. And so this tearing down and redistribution of matter is, under the dominion of force, constantly going on. Every organized being, whether animal or vegetable,

has its period of molecular aggregation, of growth and so-called nutrition, of active, progressive changes, and then the same forces which have resulted in the combination of the molecules which make up its substance, are again active in those yet further molecular changes which bring about its morphological destruction. I say the same forces which brought together the molecules which composed this body of mine, will in time insure their separation, and thus bring about the disintegration of solid and fluid tissues, and return them again to the common stock of matter, while the energies which brought about these definitive changes, through the reaction of the matter thus metamorphosed, will in time be transformed into other forces, and itself returned again to the parent or unit force whence it was segregated, and thus will all that which goes to make up this Ego, this individual I, be returned again to that great source from which it emanated.

If this dictum of the unity and the conditions of forces be admitted as true in its application to the various forces of which we have been speaking, are we not justified in assuming that the law is general throughout the material universe. And whether we study this unity as exhibited in the macro-cosmos, or in the micro-cosmos—in the revolutions of solar systems, or that affinity which binds together two atoms—in those early convulsions which resulted in the upheaval of continents, or the change which culminates in the growth of a blade of grass—in the devastating earthquake, or the fall of a leaf in autumn—in the wheeling in infinite space of a planet, or the infinitesimal vibrations of a ray of light—in the action of volcanic fires, or the molecular changes within the single battery cell, we shall see that in any extreme it unfailingly exhibits the same characteristics. It is the exhibition of the same force which results in the molecular aggregation called man, and that of the lowest organic life. Within the two organizations constant definitive changes are going on that differ but in degree. The results of those changes in the two are precisely alike in fact. Life, vitality, in the one is, in a physical sense, precisely what it is in the other, except that in the lower it is simple and all the processes are elementary, in the higher it is complex and not readily comprehended.

And now, having considered the law of the correlation of forces in its application to the lower forms of matter, shall we stop when we are just upon the threshold of the secret places of

nature? We have shown that in inorganic life the law prevails and answers all the phenomena there exhibited. Shall we admit that the harmonies of nature become discords when they are played upon the strings of a more perfect instrument? As we rise in the scale of existence, shall we conclude that where, before, all was beauty, and harmony, and exactness, now all becomes discord, and falsehood, and incongruity? Shall we admit that the laws which are universal in the lower objects, are suspended when we arrive at the point where they are most needed to make things congruous? The world has long accepted as a fact the belief that man is a law unto himself, and that his physical being is not subject to the rules which govern all the rest of creation. The life of one of the lower animals was thought to be one thing, that of man to partake of a very different essence. That the vitality of the shrub which grows by the wayside had no kind of resemblance to the flower which blooms in our gardens. Let us look into this thing.

My subject, as announced, is nervous force. Perhaps many of you have wondered if I were to pay it the respect of a passing glance, and if so, what my long prelude meant. It was necessary that we first establish and make clear to your comprehension the doctrine of the correlation of forces, before we attempted to apply it to other and higher uses.

We have seen that the light and heat of the sun, under favoring conditions, have developed or been transformed into other forces. We have examined those forces, and have found them a unit in their origin, though diverse in their mode of manifestation. We have seen that light may be changed into heat, heat into electricity, and that into chemical affinity. That all these so-called forces are mutually interchangeable, alike, identical. That each is the result of certain molecular changes, themselves induced by manifestations of other varieties of the unit force. We know that all organic bodies, whether of low or high degree, are composed of the same atoms that unite to form other matter, and, therefore, they must be amenable to the same laws.

There are certain phenomena connected with living matter called vital phenomena. Under the old hypothesis that there were many kinds of force, and that each was an entity, acting in an independent manner upon such matter as was subject to its influence, it was easy to suppose that nervous force was a some-

thing distinct and by itself, and that it was not subject to the laws which governed other forces. When it was believed that magnetic attraction was a pervading something which established a kind of affection between certain substances, and aversion toward others, and that this attraction was a thing by itself, dominated only by its own laws, and owing no allegiance to the principles which governed the relations of other matter, then it was easy to imagine that nervous force was a principle alike distinct, separate, and removed from all other dominant forces. In that early day there was no harmony in nature, but a continued clashing and discord among mutually contending forces. Let us now suppose that nervous impulse is but another mode of manifestation of the unit parent force, and how quickly all becomes harmony and beauty.

The lapse of time admonishes me that I cannot pursue this enquiry with all the minuteness with which I endeavored to examine the physical forces, but that *all* force is identical, interchangeable and the same, seems to me plain from a number of reasons. In the first place it is derived from the same source. The same molecular changes and mutations which in the battery cell result in the evolution, or more strictly speaking the segregation of electrical force, here is manifest as nervous force. We are constantly supplying the elements of this nervous battery, in the food which we take, and these molecular changes which we denominate digestion and assimilation, result as such changes ever do, and must result, in the elimination of a force which, in this method of manifestation, we call nervous force.

If an animal be deprived of every kind of food except fats, it finally dies of inanition, though there is no apparent emaciation. The changes incident and necessary to nutrition cannot be carried on in the absence of necessary elements. So the molecular changes of the digestive process having partially ceased, there is a consequent diminution in the evolution of nervous force, which finally results in complete functional stasis, or death.

Again, that nervous force is identical with the other forces is manifest from the fact that in many of its phenomena it is the same. As light and heat are modified by other forces, as well as by the circumstances under which they are made manifest, so nervous force is dominated by the environments which surround its elimination and exhibition. The methods in which the changes

which result in light and heat progress, the elements taking part in such changes, all have an influence upon the characteristic of the force so generated. This is also true of nervous force. When the molecular changes going on within the body in which is generated nervous force are most active, the force generated is great. When these changes cease, nervous force is no longer generated, and the body is dead. When the products of these changes are for any reason transformed into heat, as in certain pathological conditions like fever and inflammations, nervous force is decreased. If the body be subjected to intense cold, the transformation of these changes into force is retarded, and not only is the temperature of the body reduced, but nervous force is diminished, and the organs which are controlled and regulated by it become torpid. Certain drugs have the power entirely to suspend these transferences of force, or to modify them greatly. So in the generation of other forces through the chemical or other changes which induce them, the elimination or action may be modified or suspended by the introduction of interfering matter.

Nervous force may be changed into other forces, and on the other hand, light, heat and electricity may be transformed into nervous force. It is not sufficient that the tadpole be furnished with the necessary food and heat for its development into a frog. Unless light be given him he remains in his tadpole state. If heat be not supplied to the freezing animal there will be no nervous force, and how familiar is every physician with the fact that when nervous force seems exhausted, the mere application of heat supplies the needed nervous impulse; how else than by a transference of the force? If I apply the poles of a powerful battery to the nerves of an animal in which the evolution of nervous force is quite suspended, all the effects of that force are manifested. The heart can be made to beat, and any special muscle to act as in life, for a limited time; how else than by the transference of this mode of manifestation of the unit force? Electricity seems more nearly correlated to nervous force, than is any other mode of motion. Indeed, in some animals they seem interchangeable at will. Thus the gymnotus, or electrical eel, by the possession of a more than usually complicated nervous apparatus, can give electrical shocks of considerable power at volition.

The fire-flies and glow-worms are also provided with special organs by means of which they can at will emit light, as the

gymnotus does electricity; that is, nervous force is transmitted into light. In all such animals, when nervous force is exhausted, when they are tired out by continued irritation or excitement, this power to emit light or electricity is gone, and it returns only when the nervous impulse is again perfect.

The laws which govern the manifestation of nerve impulse are less understood than those dominating the other forces. The force itself seems, like an algebraic expression, to be raised to a higher power, but that it therefore differs from the others does not follow. When in the light of the theory of the correlation of forces it is intelligently studied, we may hope that its phenomena will be better understood, and its conservation become a wrought out problem. We have learned how electricity may be stored up, imprisoned against a time of need. Why should we not discover the same thing concerning its nearly related nervous force? When the battery ceases to work we know how, within certain limits, to remedy the defect. What hinders our learning the same thing of the nervous system? Many men have striven to gain this knowledge, but not, so far as I know, in the light of the latest revelations of science. Nervous force has been regarded as electricity once was: as an entity, an entirety; as something distinct from other forces. It is time that men began its investigation from another standpoint.

In the first pages of this hastily written paper I said that the progression of force is, so far as we now know, by undulations, and onward, wave-like motions. This is by experiment demonstrated to be true of nervous force. Even the rate of this advance has been determinately measured, and found to be in the motor nerves about 110, and in the sensory nerves about 140 feet per second; so that we see in its mode of progression it obeys the law governing other forces.

Of the manner in which nerve force is eliminated we know little, but that it is in some way through the nerve centres we are convinced. Experiment has proved this, and at the same time established the fact of its close correlation to the other forces. When the nerve centers are destroyed or paralyzed, not only is the production of nerve force stopped, but the body quickly cools. Upon sending a current of electricity along the course of the nerves, the bodily heat or temperature rises, so closely are these forces connected. If an organic body be

deprived of light, not only is nervous force diminished, but the temperature is lowered.

We have all known persons whose hair during conditions of nervous excitement would stand on end, and from whom at such times could be drawn distinct electric shocks. I know a man who, by inducing a restless, agitated nervous state in favorable atmospheric condition, can light a gas jet by simply holding his finger tip to the burner. These states are always succeeded by nervous depression, undoubtedly due to a loss of nervous power, through its transmutations into electrical force.

That nervous force is very closely correlated with electrical force is again proved by the fact that all persons of highly wrought nervous organization suffer extremely during electrical disturbances. So-called magnetic storms induce a condition of great nervous exaltation in many people. Nervously anæmic people derive strength from a gentle electric current, because of its conversion into nervous power. People who suffer from nervous irritability find an exacerbation in electricity. That is, when the lesion is of the nerve centres, the generators of nerve force, electricity is beneficial; when in the conducting nerve filaments, it is aggravative, for obvious reasons.

There are many other points and arguments which I should be glad to present, but this paper is already too long, and I must leave the consideration of the subject. I desired to say something concerning a kind of nervous ebb and flow in certain of the vegetable kingdom—to speak of the stinging nettles, and of certain jelly-fishes which without a discoverable nervous system, yet give distinct shocks through some occult means—to speak further of the inordinate waste of nervous force in certain states of excitement or passion—to say something about the anatomy of the nervous system, and to examine a little the phenomena of excessive nervous irritability. I am even leaving almost untouched one great division of my subject—nervous lesions. I can only plead the vastness of the subject, and the impossibility of doing more than to make a brief presentation of it within the limits of a paper like this.

The importance of a more careful study of the physiology of nervous forces is apparent when we remember that the type of American diseases is to-day distinctly nervous, and that from year to year it is growing more so. Reflecting men in the medical pro-

fession have begun to recognize that we are making little progress in learning to combat these ills, and are seriously looking about for the reason. Some of the most profound thinkers in medicine have turned their attention almost exclusively to this field. They have advanced little further than to discover the cause of certain troubles, and lament the inability of the profession to grapple with and overcome the difficulty. Books have been written which have stirred medical men up to a recognition of the importance of this subject, without convincing their authors that they themselves fully comprehended the matter. Is it not time that investigation began from a new standpoint? Is it not time that enquiry took another direction? If any one has studied the subject from the vantage ground of the correlation of nervous impulse with the other forces, I am not aware of it; but I hope that this may be a door which shall enable some one to enter upon a field that will give richer returns than any have yet yielded.

THE MECHANICS OF DENTISTRY.

BY DR. W. A. STEVENS, CHICAGO.

[Read before Illinois State Dental Society, May, 1882.]

THE term Mechanical Dentistry has been wrongfully applied in all books, and most writers on the subject have had a narrow conception of its application, confining it to that portion of the art of dentistry which is practiced in a dental laboratory—the mere routine of melting zinc and lead, stamping plates of metal, soldering teeth to the same, or some of the other modes of working materials which are used as bases for supplying substitutes for the natural teeth.

I propose to claim for it as much of thorough study and preparation as for any part of the dental art. Mechanical operations of various kinds comprise three-fourths, if not more, of all that is practiced by the dental profession.

For the plugging of teeth, from the formation of a cavity until it is properly filled and finished, and the preparing of roots and fitting crowns to them, all involve mechanical ideas and thoughts; and he who has the best knowledge of mechanics, with an aptitude for the varied adaptations of mechanical ideas to

individual cases, is the most successful in his operations, and this, combined with thought and observation to produce that which is most natural, insures success—his patients cry, “Eureka”—take for instance the gold crowns first made by Dr. Morrison in 1868. One must have a fair knowledge of working in gold to make a success; in this I do not mean a thing which will stay on a root, and be called a tooth; as for example: this specimen which I exhibit to you, that resembles more a miniature cliff with a table rock, than a tooth to be worn in a human mouth. * * *

The fact that the mechanical art of dentistry was practiced some three or four hundred years before the Christian era is no claim that it is not now advancing as fast as any other art. And he who claims there has been no advancement in the manufacture of dental substitutes or the mechanical part of dentistry, and only that which is performed on the patient, termed operative, has advanced, must have been looking through smoked glass in a dark night, or at the bright sun of advancement, so when he turns his eyes away from it they have been so dazzled by its bright rays, that all looks dark and obscured. Is it not a fact, that the competition between the manufacturers of mineral teeth, each striving to excel the others in the production of those which are the most natural, has resulted in the production of so great a variety and such excellent forms and colors, that the fault of ill adaptation is not so much in what is made, as in the individual who selects and arranges them for his patients, giving such hideous expressions to those who wear them, that they distort the “human face divine” to a traveling advertisement of some shop, whose keeper has about as much appreciation of what should be selected for this or that individual to restore them as far as possible to what nature intended, as a blind Hottentot would have between a donkey and a well-bred Arabian steed, or a deaf mute to the difference between the music of a hooting owl and the lark’s morning song?

I cannot agree to the opinion of those who have written for the past few years, that the production of teeth by regular manufacturers has been a great cause of the decline in beauty of substitutes for the natural organs; or, as they say, “when you enter a crowd of people, *artificial* teeth are presented to you on every side.” The real cause is, that they were made by scrubs claiming to be dentists, who had about as much knowledge of the expressions

and likeness of the "human face divine" as a Greenlander has of the beauties of nature's developments in the tropics. It does not follow because one with little knowledge can purchase a set of teeth and get them into a shape so they can be worn, that prosthetic dentistry is degraded thereby, any more than the carpenter's trade would be degraded by one who can purchase a set of carpenter's tools and build a house. The builder of each would have to write under his own work, "This is a House;" "These are Teeth;" for unless labeled it might be difficult to say *what* they were intended to represent. In each case they should be regarded as wholly outside of the respective callings, and consequently incapable of *degrading* either carpentry or dentistry; but why is it that so many of that class are doing what passes for dental work? Many reasons could be given. Many operators look upon the laboratory work of the profession as a part to be left to a boy; or, after taking the impression, send it out to some one who does nothing but build the teeth, without the least conception of the form or features of the person for whom they are to be constructed. A person who practices the prosthetic, laboratory part of dentistry should possess a knowledge of, and have an education to perceive the form that should be adapted to the individual, as the artist with his colors to produce a likeness of his subject.

Again, so little is impressed upon the learner as to the necessity of making a study of forms and features of individuals to enable him to give as natural an expression as possible, but he is left to suppose that anything will answer if he only gets a perfect fit. Again, what is called cheap work has much to do with the disfigurement of the human family. Yet one of the great causes for the life of these shops may be placed at the door of those who denounce such work, but demand for themselves a fee as much beyond its real value as the other is below, reminding me of the cabman and the Scotch divine; the divine one Sabbath, when it was raining, called a cabman to carry him to church; on tendering him the regular fee, the cabman demanded twice the amount; "But," said the divine, "this is the regular price; how come you to charge me twice its value?" The cabman replied, "So as to discourage travel on Sunday."

A gentleman called at my office a few weeks ago to have a set of teeth made, and taking a new set with rubber base, out of his pocket, saying, "I cannot keep them in my mouth so wear

them in my pocket. I paid fifty dollars for them only three weeks ago." While I hold the party may have a right to charge the fifty dollar fee, I still hold he should not complain of men making four and eight dollar sets of teeth, for one is as much an excess of a fair price as the other is below. This was a case where the teeth were made away from the office of the dentist who took the impression, and the man who made them had no knowledge of the condition of the mouth; by a slight change in the plate a perfect adaptation was effected. Now the manufacturer had no knowledge of the mouth or means of knowing except by the cast; while the individual who took the impression failed to perceive the difficulties, either through ignorance of how a set of teeth should fit, or negligence of examining for the cause of trouble, for either of which he was inexcusable; but he told the patient to "keep them in, they will fit after awhile."

Even in the days of Pompeii the mechanical art of filling teeth (now termed operative dentistry), must have been practiced by its inhabitants, for in their laws was written the decree, "You should not dig up the dead to pick the gold out of their teeth." And by comparison with the medical profession, there may yet be found something which will be equal to what is used to-day; for when a German inventor devised an instrument which set the medical fraternity aglow with approbation and praise for the inventor, as it was a benefaction to one-half of the human family; yet, twenty-five years after, its duplicate was found in the ruins of Pompeii. The same idea was conceived and worked out eighteen hundred years before.

To those who would make a division of the work of dentistry, and have some learn only that which is performed in the laboratory, and the others what is done at the chair, I cannot agree. What would you say of an M. D. who comes forth before the world as one qualified to cure the ills of mankind, if his first patient should happen to be one with a simple fracture, and he should announce to him that he was not a surgeon, and had no knowledge of replacing bones that were out of their regular places; each and every one would exclaim, "He had better finish his education." So in the profession of dentistry; whether one prefers the work of the laboratory or that at the chair, he should make himself master of each department, and not place himself on the same plane with some matrons of households, who can play a

piano and work worsted dogs and cats on canvas, but have no more knowledge of the ingredients of a pumpkin pie, or how to cook a steak or boil an egg than a Comanche Indian.

Every dental college and every dentist who takes a student, should, as far as possible, impress upon the minds of the students the importance of obtaining as perfect a mastery of the mechanical principles and arts applicable to their profession, as they do of the science and art required for correct diagnosis of the various diseases of the oral cavity. Every medical college should make its graduates familiar enough with mechanics, that they may be able to make a common splint that will be endurable to a patient, and not a disgrace to the laws of mechanics.

I would add that every member of this or any other profession should follow the life motto of the late Bishop James:

“Get all the good I can,
From all the sources I can,
In all the ways I can,
By all the means I can,
And as long as I can.”

“Do all the good I can,
To all the persons I can,
In all the ways I can,
By all the means I can,
And as long as I can.”

DISCUSSION.

DR. STEVENS: There are many instances of lower sets in which the edges of the plate are allowed to extend so as to encroach upon or confine the soft parts and make the mouth very sore. I have seen persons who had “persevered” in wearing such sets for a year or two upon the assurance of *their dentist* that the mouth would get used to the plate and get well; but instead they had sustained serious injury and a vast amount of useless suffering. A proper trimming of the plate was followed by a speedy and complete cure.

DR. STURGISS: The endeavor to restore the natural contour and expression of the face is of the greatest importance. Some very fine work when examined out of the mouth is very poor work when in the mouth, and the reverse is also sometimes true, that some very roughly made and poorly finished sets of teeth look exceedingly well in the mouth, being selected and arranged

so as to be suitable and natural for the place in which they are put.

A dentist must be a fine mechanic, and must also be an artist so as to know what form and appearance of teeth and features he desires to obtain. The use of plain teeth is very desirable in many cases, in some it is impossible to use gum teeth at all. The conditions and forms of mouths often offer great difficulties. I would give from five to ten dollars a set if all the mouths were made to suit me.

I am not going to concede that Babbitt metal is the only one fit for making dies. Some men can get excellent results in ways that other men cannot use. Zinc and lead may do as well for those who have become masters of them, as Babbitt and the alloy of tin and lead will do for Dr. Haskell and others.

DR. MORRISON: I want to put in a plea for the preservation of the canine teeth, or any other teeth that can remain and be of any service. American dentists are very prone to clean out mouths. Many patients desire that elongated, or unsightly, or slightly troublesome teeth, though still very useful, should be removed, and dentists yield too readily to their desires. The English dentists understand this matter better than we do, and are far wiser in the preservation of the remnants of natural dentures whenever it is practicable.

There are many cases in which lower plates are cut away too much, going the opposite extreme from those mentioned by Dr. Stevens. A lower set ought to cover all of the hard ridge and rest upon it like a saddle upon a horse's back, with its smooth, well-rounded edge upon the soft tissues just at the side of the ridge as far over as can be allowed without making the mouth sore.

Plain teeth admit of so much more ready and satisfactory adaptation to the form and expression desired than the gum blocks, that I have not used a set of the latter for years; I use black rubber for plates except when using metals.

DR. OTTORY: Many impressions, especially lower ones, are taken in such a way as to press the muscles, which are attached to the alveolar process, into unnatural positions; a plate made to fit such an impression is sure to give pain. We should use in upper cases cups with very short rims, and in full lower cases the

cup with the rim entirely cut away so as to leave the muscles and soft parts in as near the natural position as possible.—*Illinois Transactions.*

Editor's Specials.

"Write the Vision and make it plain."

SORRY AS WELL AS ASHAMED.

FOR more than a year we have wished to express through the JOURNAL, our views about a circular issued in Great Britain by two American dentists, during a sojourn after the meeting of the International Medical Congress. We failed in repeated efforts to obtain a copy of it for reference, and hence kept quiet, lest we might do injustice. At the late meeting of the American Dental Association in Cincinnati, however, it was given us by a friend, and, as so many have inquired about its nature and character, we insert it as a news item. It is as follows:

LIMMERS' HOTEL,
GEORGE STREET, HANOVER SQUARE, }
LONDON, W., August, 1881.

To the Members of the Dental Profession :

THE interest manifested by many of the profession in the late improvements in OPERATIVE and MECHANICAL DENTISTRY, as illustrated by Dr. E. Parmly Brown and Dr. J. S. Campbell, of New York, at the clinics given in this city during the meeting of the International Medical Congress, has been such as to induce them to accept an invitation to return from Paris on August 24, and devote one week to practical teaching in these two distinct branches of dentistry. A suitable place will be fitted up with the necessary appliances, and both branches will be in continual operation each day from 9 A. M. to 8 P. M. for one week.

Dr. E. P. Brown will operate and illustrate by plaster models and drawings his rapid mode of contour restoration of the natural teeth with cohesive gold by impactment with the electro-magnetic mallet and other improved inventions. He will explain the use and advantages of his depressed rubber dam, and

his universal clamp, which has attained such a high appreciation in America.

Other skillful operators have been secured to assist in these demonstrations. At the same time and place Dr. J. S. Campbell will clearly illustrate by practical demonstration his new and artistic mechanical work, which has been acknowledged by written testimonials and medals to be the best in America. His new mode of treating rubber and celluloid with his new and simple machine, enables him to combine the two materials in a practical and artistic manner. To mould difficult pieces in sand with any simple flask without danger of blowing by moisture. The reproduction of natural appearance in artificial dentures; a simple and easy manner of carving and producing finished work with little labor; also new tools invented and introduced by him will be fully illustrated and explained. As Dr. Campbell devotes his whole time to experimenting, he is prepared to make his teaching more than usually interesting.

As there will be considerable expense attending a return from Paris, and cost of fitting up for the occasion, a charge of £5 will be made; this will entitle each person to a continual attendance during the whole week, and the privilege of bringing a patient for a practical illustration of each operation, and of all the new work.

Those wishing to join must send in their names at once to DR. J. S. CAMPBELL, at the above address, in order to decide if a sufficient class can be obtained to meet the expenses of such an undertaking in time to open the clinic by August 24.

Due notice of the place of meeting and full particulars will be sent to those gentlemen whose names are received.

E. PARMLY BROWN,

J. S. CAMPBELL.

Like the circulars of nostrum-venders, it calls "special attention to the strengthening cordial—ingredients known only to ourselves." Dr. B. will illustrate "his rapid modes," "his depressed rubber dam," "his universal clamp," etc., etc. (Our underscoring.) Dr. C. "will clearly illustrate by practical demonstration *his* new and artistic mechanical work;" "*his* new mode of treating rubber and celluloid with *his* new and simple machine," etc. (Our italics.) "Considerable expense"—certainly. Charge of £5. Cheap as dirt.

Did Dr. Coffin charge the American visitors that called in numbers to catch ideas of his mode of regulating?

Imagine a couple of English dentists coming over here, and after we have shown them our whole hearts, our devices and appliances, our modes and methods, have opened up to them our best thoughts and bestowed on them our best feelings, have dined them and wineed them,—imagine them issuing a full page poster telling us, “Gentlemen, for twenty-five dollars we’ll show you an entirely new crook of the thumb, and two new winks that will give you full and complete control of your patients’ nerves, and a new flirtation, backed up by a special genuflection, that will give you as full control of their purse strings.” Well,—if two of them should do that way, we would hardly know who should feel the worse about it, we, or the English dentists who stayed at home.

DECLARATION OF INDEPENDENCE.

Nor the “When in the course of human events” kind, but one more emphatic, as we all say that actions speak louder than words. But let us explain. A few days after the issue of our October number, the August number of *The Independent Practitioner*, which we had sadly missed, came along, and then only half its usual size. But the editor explains as follows: “These few pages are offered as an apology for our August number, with the following explanation: Both our associates retired while we were taking our essential summer vacation. Our Dr. Geo. H. Rohé has embarked in his own little boat, the *Medical Chronicle* of Baltimore. * * * * Our Dr. Geo. W. Field has returned to London,” etc. Now isn’t that independent to slip off while the boss is away? But as they edited the *Independent Practitioner*, they didn’t hesitate to indulge in independent practice. The Dr. F. spoken of is not the Dr. Geofield that finally made Mr. Hypothetical’s teeth. He might have gone fishing, but he would not have run clear away when left to watch the gap.

DO WE KNOW ANYTHING?

AND especially, do we know how any medicines act? Some discussion came up in the late meeting of the American Dental As-

sociation, which was intended to give light in reference to this question, but which resulted in an almost total eclipse, and we believe mainly for want of using words in the same sense by the disputants?

It is easy to say all our knowledge of the *modus operandi* of medicines is empirical, and the word empirical is in such case an unoffending term. But while there is a sense in which we know nothing on any subject, there is also a sense in which we know *clearly* how some medicines act. (But now we expect some boy will tell us that we have satisfactorily demonstrated that we know exactly nothing at all about the subject under consideration; and if he does, we'll be quite as good natured with him as we were with himself or his playmate at the meeting of the Association; for "boys will be boys, you know," even if you don't know how medicines act.)

Our knowledge of the action of the plow is, in one sense, empirical, but by our knowledge of civil engineering, intuitive or acquired, we know, by looking at it that it will stir the surface of the ground; and so with a harrow,—a few days ago we looked at one not bearing the slightest resemblance to anything we had ever seen, yet we knew at once what it was for, how it would operate, and that it would do most excellent work, as we have since seen it do.

We may have indulged in a diet of fruits, unseasonable as to time, or unreasonable as to quantity, and a failure to digest is followed by a fermentation of the fruits. We may know empirically that such fermentation results in the formation of acetic or lactic acid; but our knowledge that an alkaline carbonate will neutralize the acidity, set free carbonic acid gas, and thus mitigate the distress at the stomach, is not empirical, yet in such case the carbonate is as really a medicinal agent as is opium in the amelioration of pain.

At the late meeting of the Association we objected to the statement, that we do not know how medicines act as too general, stating that we *do* know how some medicines act, and we *don't* know as to others—not, "don't know how to harness others," as the *Register's* report has it. We illustrated by a reference to arsenious acid then, as we have now referred to an alkaline carbonate, and we don't think anything was said at the meeting tending to show that we were in error as to the action of arsenic.

Prof. Mayer's failure to preserve a frog by pouring an arsenical solution over it proves nothing when positive testimony comes to counteract it; and we have seen more than one frog preserved from putrefaction after death by arsenic which had been applied to their legs in very minute quantities while they were yet alive. One tenth of a grain was taken up by a small piece of moistened lint and tied to the leg of a frog by wrapping floss silk around it. The frog soon died, and dried to a crisp, in the laboratory, without signs of putrefaction, even in mid-summer. And would it not be strange that arsenic should lack power to destroy low vitality when it so readily and promptly destroys the highest types of life? The conditions in Prof. Mayer's laboratory, as reported by him when the mold formed and when the frog putrefied, were such that the arsenic failed to permeate the textures to be destroyed in the one case, and the tissues to be preserved in the other. Arsenious acid and arsenite of soda are but very slightly volatile, so the water might evaporate, leaving the acid and the salt in their respective vials. The vials being uncorked gave their contents but little additional tendency to devitalize mold in the laboratory over what they would have had if corked. And the solution poured over the skin of the dead frog formed a texture not-favorable to its penetration and permeation.

Whether a medicinal agent be matter or force, it acts on a living body by producing chemical changes on or within that body. We can not think without chemical action being manifested on or within us. Take the ordinary action of oxygen in the system as an illustration. When we sleep we store passive, or quiescent oxygen, within the red corpuscles. If the oxygen thus stored were not passive, it would burn up the phosphorized inatter in the corpuscles—would destroy the corpuscles. But it is carried thus in the circulation, and when voluntary power is wanted, the will, (the spirit, if you prefer) renders a portion of the oxygen active, at the right time and in contact with the proper material, and chemical force is manifested as vital force, by correlation if you like the term. That oxygen in its passive state may be rendered active by will power is not more strange than that it is so changed by the passage of electric sparks. It is only one more illustration of the superiority of mind to matter, or spirit to body. These remarks refer to the oxygen used in the manifestation of voluntary efforts of mind or body; that used in

sustaining the organic functions is taken directly from the atmosphere by the iron in the blood, as it is changed from the protoxide to the peroxide; but to discuss this here would carry us beyond our present range.

Public confession of our utter ignorance may pass current for modesty; yet the noisy school-boy who stood on a stump in the playground and shouted to each passer-by, "See what a modest humble boy I am," failed to get full credit for humility from his playmates. And grown boys may fail in like manner. All recognize the fact that our ignorance far surpasses our knowledge, but it is not always a proper thing for a man to insist that what he does not understand is not understood,—not even understandable by others. It is fortunate that there are diversities of tastes and talents, so that knowledge is sought after in many channels, as it would not be without such diversities.

Of the *modus operandi* of many medicines we know nothing; of others our knowledge is empirical; yet of some we can truly say we know their *modus operandi* as medicines, as really as we know anything, from our knowledge of their properties and characteristics. In the development and growth of living bodies matter is used strictly in accordance with chemical laws. Life creates nothing, and while it modifies chemical action, it has no power to take matter beyond the range of affinity, which acts according to its nature, modified, however, by vitality and other circumstances.

"ONE OF THE FEW"(LS!)

READERS of the JOURNAL—readers of almost any dental periodical—may recollect a short article signed by "One of the Few," which apparently tried to pass itself as original in all the dental journals. The OHIO JOURNAL gave the proper credit when using it, and some of the others charged their co-laborers with taking an article and failing to give credit. The article aimed to prove that the editor of this JOURNAL is too ignorant to know an abscess sac on the root of a tooth from a tooth germ. The JOURNAL reported a case of the germ of a permanent tooth having been extracted with the temporary tooth. Some time afterward, "One of the Few" maintained that such an accident is impossible, and

the JOURNAL never claimed that it could occur while the textures involved were normal, but with such conditions there would be no call for extraction.

The member of the "Few" family exhibited commendable industry in circulating his piece in the journals, some of which had failed to learn that some articles remain original regardless of the number of times published. Some of them published the paper with comments, while others, as mentioned, charged their competitors with appropriating their articles. This is history, and there is more history.

About the last of June, 1882, "The Connecticut Valley Dental Society" held a meeting, and "One of the Few" was present, and so were Drs. Stebbins and Vincent. Dr. Stebbins said, "I would ask if Dr. Vincent could explain and give an account of the little girl that was once brought to me with a swollen face. I think the left inferior second temporary molar tooth was giving the trouble. The physician wanted the tooth extracted. The tooth was extracted and the germ of the bicuspid was in the abscess sac. I would like to find out more about it."

"One of the Few" was there, and his views were called for. There is a fish that muddies the water if it thinks itself likely to be caught. But among the many fishes known to naturalists, this is *one of the few*. As already suggested, its counterpart was called on for an opinion. He, that is, "One of the Few," began thus: "This case is representative of cases typical in clinics and hospitals, and the question as to the cause, etc., depends on our knowledge of the history and the origin of the child, and on the doctrine about the origin of scrofula. In some colleges they say that there is no scrofula that did not originate primarily from syphilitic poison." And having the waters of thought thus effectually bemuddled by the mire of words which he had stirred up he cautiously risks a slight nibble at the bait, thus: "The question which was first suggested, as to taking out the germ of the permanent tooth with the temporary tooth, is of great importance to every dentist." But how could it be of great or even small importance to every dentist, or to anybody, if it could not take place. The question of an impossible accident can not be important to anybody. But he continues to nibble thus: "And every dentist who understands the history of a tooth can determine whether it is safe to extract a temporary molar or not, which

alone can involve the germ of the permanent teeth between its roots." And again he muddies the water.

In all this we care nothing for personal standing. We are willing to be regarded as the fool that "One of the Few" represents us, if thereby truth shall prevail. But, if one of the few had a warm feeling for truth rather than self, he would see that all the journals he visited with his little article, should get a report of the case of Drs. Stebbins and Vincent.

It would not answer to tell these two men to their faces that they had mistaken a pyogenic sac for a tooth germ; hence the squirming. And look at the innocent little dodge; of course an incisor or cuspid can not "involve the germ of a permanent tooth between its roots," as it has but one. Perhaps he is going to yield the question a tooth at a time.

A braggadocio was boasting that his horse could outrun anything that went on foot. A wag proposed to match a horse with him. He backed down, saying that horse looked like a trained race horse; but his could outrun any but this horse. The wag proposed to run a mule against his horse. He receded again, saying some mules could outrun all creation; but his could beat all except that horse and that mule. The wag next offered to bet he had a "nigger" that could outrun his horse, and dared him to stake his money. He went off muttering that some "niggers" could run like deer, but his hoss could beat anything in Kaintuck except that hoss, and that mule, and that "nigger."

Having backed down on a bicuspid, "One of the Few" may yield on the other teeth, and help us to guard against the mutilations under discussion, which sometimes do occur, but which never should. That truth may prevail, and that society may be thereby protected, is our sole motive in writing this; for we care not a straw for the old personal discussion. The time has gone by that our editorial pen could be moved into action by merely personal considerations. This was intended for an earlier date.

OHIO STATE DENTAL SOCIETY.

Few, if any better societies than this one exist. No dentist in the State can afford to miss one of its meetings for ten times the money that he can earn by staying at home, added to the

expenses incurred by attending. There may have been a time when the people could appreciate a stay-at-home dentist, but in these days of enlightenment the better class of them feel sorry at the idea of disturbing him in his contentment, so they let him stay at home, and they wait for the return of his rival from the Society meeting to get their work done, feeling sure that this is the way to get operations according to the latest and best improvements.

The next meeting will be held in Columbus at the usual time, first Wednesday of December, and as the date of meeting is uniform from year to year, no one has the excuse that he does not know the time of the meeting and failed to receive a circular. In the days of our most active practice, we recorded the meetings of the important societies in our engagement book at the beginning of the year, so as not to forget and make engagements for the days thus dedicated. And we would have worn coats patched at the elbows, with pants to match, rather than miss the meeting of an important Society in those days.

Two or three years ago we met a young dentist who needs the advantages to be gained by association as badly as any in the profession. It was during the week following the annual meeting of the State Society. You were not at the meeting? said we. No, said he; I was so busy I couldn't possibly go. Tell that, in a whisper, to old Credulity, said we; for we all know you could have attended as readily as any who were present, and with as little sacrifice.

A good programme is provided for the next meeting, and we suppose circulars will be distributed as usual. We have some hope that our correspondent, Dr. M. C. Keith, will be with us, as he expects to visit Ohio some time during the coming winter. A lecture from him, on the relations of electricity to dental surgery, would, most likely, be more than a treat. We are not promising anything of the kind, but we do promise a good meeting, and would urge all of you who can to attend it.

A VERY FLATTERING NOTICE.

PROFESSOR MAYR, of the *New England Journal*, in what he calls "Impartial Impressions from the meeting of the American

Dental Association at Cincinnati, August 1—4, 1882," notices the editor of this journal in such complimentary terms that we copy his remarks in order that our readers can help us thank him. We would give the entire article did space permit. He speaks first of Dr. Atkinson, closing with the remark that "all listen, all are carried by the ardor and the love of truth which every one, even he who does not understand him, sees and hears in his words and actions. Without Atkinson, a meeting would seem to us to lack one eminent factor—enthusiasm." Next in order he notices the editor of this journal as follows: "Quite different from him is DR. GEORGE WATT, the editor of the OHIO JOURNAL. While sitting at his table taking notes, he appears very quiet, very calm, not showing much excitement, but let him rise, and a smile will pass through the assembly. They know that sharp, clear and witty sayings may be expected. He is one of the clearest and most precise speakers at the meeting; one knows what he means to say, and one of the reasons that his opinions meet with either stronger approval or stronger opposition than those of others, is because you know what you have to accept or what you have to oppose. His tall square build and measured movements inspire confidence. He has been at many meetings and fought many battles, there is no doubt."

Now, except the *fighting*, we regard that as highly complimentary. A man can not make others understand him unless he understands the subject of his discourse, and whenever he habitually fails to be understood, it is because he as uniformly fails to understand himself, or rather the matter about which he speaks. We try to be understood, and if we have succeeded, as intimated by Professor M., we are truly gratified. Readers, please help us to be thankful for the compliment.

PROGRESS OF DENTAL JOURNALISM.

MANY of us but slightly crowned with gray hairs can well remember the advent of periodical literature in the dental profession. *The American Journal of Dental Science*, a quarterly published at Baltimore, was started, if our memory is correct, by the American Dental Society, but soon fell mainly into the management of the pioneer and veteran, Chapin Harris. This was the

first dental periodical. It was soon followed by the *Dental Register*, which had an early history not very different from that of its predecessor, as it was established by the Mississippi Valley Association of Dental Surgeons, the second dental society to exist, and was, as soon as thought to be able to bear its own expenses, transferred to Dr. James Taylor. The *Register* and the society that established it have still a vigorous, healthy existence, while the former society long ago disbanded, and the journal ceased to exist. (A monthly, having the same name as the old journal has been established in Baltimore, and seems to be both alive and awake, but whether it claims or is entitled to the claim of identity with the first journal, we are not able to say.)

Not long after the *Register* had become the property of Dr. Taylor, he was requested by the Mississippi Valley Association to enlarge it, by adding one more form, which he agreed to do. After adjournment he told the writer that he feared it would be almost impossible to get matter to fill it. He said there were so few dentists capable of writing for the press, and of those capable, very few were in the habit of writing, and in the medical journals there was so little that would interest dentists, that he really feared he had made a mistake in promising the enlargement. A few of us present, there and then, promised to help by furnishing each an occasional article. Whether that promise was kept or not, we are not now able to say. By looking into the back volumes of the *Register* of corresponding dates, articles may be found from J. Taft, Watt, Hamill, McCollum, Ullrey and others, and if found, the promise was not totally disregarded. That an experienced editor would expect difficulty in finding matter for a quarterly of but three forms, seems strange, perhaps, to our younger brethren.

But we must not despise the day of small things; and we should award all honor to the pioneers who in those dark days struggled to lay deep and strong the foundations of our periodical literature.

Again, when Colonel Jno. T. Toland determined to make a monthly of the *Register*, which was our first monthly journal, our good friend, Dr. James Taylor, warned the editors, Prof. J. Taft and the writer, that it would be very difficult, if not impossible, to obtain a sufficient quantity of matter to fill it. We reminded him of the promise made to him when a previous enlargement

had taken place; but fortunately, we found no increase of the difficulty in finding suitable matter in the desired quantities, for it seemed that many had not written, or if they had, had written less frequently than otherwise they would have done, because they felt that the available space would be filled by abler or more experienced pens than theirs. Increase of space seemed to invite their pens, and they responded, and thus some of the ablest writers of our profession have been brought out from voluntary obscurity. The same principle has been illustrated in the starting of the OHIO JOURNAL. Some timid and inexperienced friends suggested that the two periodicals being within the same State, it would be very difficult for both to get material for their pages. They feared the one would injure the other, but we presume there was never less trouble in obtaining matter for the *Register* than since the JOURNAL started, and even a tyro can see that the quality of its matter has not deteriorated. The effect of the JOURNAL has been to call out new pens, or to recall and wake up some that had been laid aside for repose.

There is not much science, professional or otherwise, in this special, but we feel that the younger brethren ought to know something of the early struggles of the profession before the witnesses are all taken away. "The fathers! where are they? And the prophets! do they live forever?" Nay, verily. And the time will come when all items of the early history of our profession will be sought after and regarded as interesting.

THE POWER OF MYSTERY.

THE man was not singular nor alone who admired the new preacher because he could not understand a word he said. In the human mind there is an inherent or innate love and reverence for the mysterious. For example, on page 421, current volume of the *Dental Register*, one of the most experienced thinkers of our profession says, in reference to the last meeting of the American Dental Association, "Dr. Atkinson's paper was sharply criticised by Drs. Watt, Rehwinkel and others, who said they listened but could not understand. It may be possible that the vocabulary of Dr. Atkinson may be plain in the future, for Swedenborg, who taught more than a hundred years ago, was very little under-

stood; but to-day the theories taught by what he called inspiration have entirely remodeled and beautified all the old theologies."

While reminding our esteemed and talented brother that the old theology of the golden rule of the Nazarene has been neither remodeled nor beautified, we will also remind him of his admission that the vocabulary of Dr. A. is not plain in the present. The case is not analogous to that of Swedenborg. His ideas were not understood, though he used familiar words in their ordinary meaning; but Dr. A.'s plan sets aside words in ordinary use, and makes new, harsh sounding ones, and proposes to teach us an entirely new language at the rate of two words a year. This year we learn "bauski and vauski," and next year perhaps we might try cowski and yawski. Its mystery is all the charm there is in Dr. A.'s paper; and the personal magnetism of the author is all that makes it tolerable. Civilization is progressing too rapidly to allow us to spend time listening to language that is not to be understood for a hundred years yet; and besides, there is quite as much reason to suppose that Choctaw will be the prevailing language then, as that the unmeaning gibberish of Stephen P. A. will be plain or even understandable, whether copied by Dr. A. or Dr. R., who seems to sympathize with it, but, as we believe, wholly on account of its mystery.

Correspondence.

"I charge you that this epistle be read.

Editor of the Ohio State Journal of Dental Science:—

DR. WATT, *Dear Sir:*—Since writing the article which appeared in the October number of the JOURNAL, I find in the July (1882) number of the *American Journal of the Medical Sciences*, the following under the caption: "Storage and Utilization of the Phosphates in Pregnancy." The theory, it will be observed, is in harmony with the claim of the paper that, except in cases of tissue starvation, there is, ordinarily, a sufficiency of the lime-salts for all the contingent needs of both mother and child.

In a recent number of the *Union Médicale*, Dr. Delattre discusses a phenomenon of early pregnancy which he considers

has not heretofore received the attention which, both on physiological and therapeutical grounds, it deserves. He refers to the almost complete disappearance of the phosphates from the urine. These salts, he says, are, except the small proportion as yet required by the development of the foetus, either stored up in the maternal bones, which increase in weight and density, or, occasionally, deposited on their surface in the form of osteophytes, which have long been looked on as errors of nutrition. In the later months, when the foetal bones are growing and ossifying rapidly, these reserves are drawn on, and the osteophytes, if present, disappear. The absorption is not complete at the time when the child is born, but goes on during the normal duration of lactation, supplying phosphates to the milk. Such is the course of events in the case of a healthy and well-nourished woman.

JOSEPH RICHARDSON.

Terre Haute, Indiana.

This is a very important and highly interesting appendix to the paper of Dr. R. in our October number. It was sent us too late to appear with the other. Together they are the most striking paper on the subject we have ever read.—ED. OF JOURNAL.

A NEW FEATURE IN DENTAL EDUCATION.

Editor of the Ohio State Journal of Dental Science:

JUDGING by the specimens of it which I have seen, I am led to believe that there is no chair of *poetry* in our dental colleges. Judging also by said specimens, I am forced to the conclusion that such a chair is badly needed. Poetry has a refining influence on the mind, and, who more than the dentist, needs refinement, to treat with care and sympathy the painful diseases and irritated patients that come under his hands? The day is not far distant, we hope, when the dental student will not be able to graduate until he can pass an examination in poetry, and produce a specimen to be framed and hung on the walls of the college. Let this be the extra polish, the last light touch of the burnisher, so that when his soul is enthused with the Parnassian fire for the noble, "very noble," profession he has been called to, he may deliver himself in lines which will not leave in the mind

of the reader a sense of nausea for a week or more after reading them, as is the case at present with your correspondent after reading a long "poem" on the dry subjects of dentistry dryly discussed, and headed with a few verses from Burns' address to the toothache, the nervous force and emphatic rhymes of which contrast strangely with the dull stream that follows, like a jumping mountain river contrasts with the sluggish, soiled waters of a stream of a manufacturing district. Rhyming, like yawning, is catching, and I caught it, and here is the result:

"Will you walk into my office?" said the dentist to the maid,
I'll fix your teeth as good as new, and don't care when I'm paid;
I'll read you my nice poetry to pass away the time,
For folks who can't talk sense in prose must always take to rhyme.

But, seriously, underneath this banter lies a truth of magnitude. Our dental colleges *are* unintentionally teaching poetry, "the poetry of science."

"The fairy tales of science, and the long assault of time."

And the difficult courses of instruction through which the students are led, not only tend to expand their appreciation of the beautiful in nature, but by cultivating the brain at the expense of the muscle; the mental, at the expense of the brutal part of man, the students are refined, humanized, and adapted to the requirements of delicate manipulation, patience, sympathy and care demanded by the nature of their work.

This is needed, for the dentist is in great danger of losing his sympathy for suffering, and sinking into the butcher. Let me add a significant fact: In a small city on this coast of about 10,000 inhabitants, a man to hang three murderers was advertised for; while none others responded, thirty butchers put in their bids at from \$20 to \$30 for the job.

J. STEWART SPENCE.

637 KEARNY STREET, SAN FRANCISCO.

COLUMBUS, IND., Sept. 20th, 1882.

Editor of the Ohio State Journal of Dental Science.

A VERY rare case of mal-arrangement of the teeth came under my observation last Saturday, and thinking it will be of interest to the profession, I herewith send you a description of it:

A lady about thirty years of age called at my office, and on examination of her mouth, I discovered that the lateral incisor

and canine tooth on the right side of the lower maxilla had exactly exchanged positions. Each stood in the place of the other, and in line with the regular arch. Furthermore, the temporary canine still occupied a position immediately adjacent and anterior to the first bicuspid, but slightly external to the line of the arch. The temporary canine was, of course, extracted, and found to be badly decayed, as would be expected. The others were sound, very white and perfect in shape.

Doubtless such cases as the above have been seen before, but if you deem this worthy of notice you are at liberty to publish it.

I am very respectfully yours,

T. R. WOODARD, D. D. S.

WHY SO DIFFERENT?

Editor of the Ohio State Journal of Dental Science.

WHILE reading over the experiences of operators, the methods and remedies used, I find myself asking, "Why so much difference in results? why not the same line of treatment with all operators give a uniform result?" There must be some clue as to why some meet success and others do not. I cannot think that there can possibly be so much variation in the action of the same drug in different localities, or at different times. There are some things that will cause trouble, and there are certain others that will be followed by a favorable issue, viz: To open out a cavity containing an exposed and very much inflamed pulp in a hurried and abrupt manner, must needs give much unnecessary pain and probably do irreparable injury. Another operator by careful manipulations and taking an intelligent view of all the conditions to be met, will bring his labors to a successful end, generally.

Now if there be anything within ourselves that is at fault, let us search it out; place ourselves under closer discipline; study, experiment diligently, keeping a definite record always of important cases. Our first object should be self-improvement, and the light thus gained should be made to shine out, that our profession may grow the richer in knowledge, and the world at large be benefited by our having lived.

W.

ST. THOMAS, ONTARIO.

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"A word fitly spoken is like apples of gold"—SOLOMON.

[Read before the Illinois State Dental Society, May, 1882]

OPERATIVE DENTISTRY—ESSENTIAL ELEMENTS OF SUCCESS.

DR. K. B. DAVIS, OF SPRINGFIELD.

THE subject of operative dentistry is a very comprehensive one, and through the ceaseless efforts of the leading and progressive spirits in our profession, its scope is gradually extending in various directions until we can almost fondly hope, at a near future, to see it so successfully practiced in every department as to no longer call into requisition the mechanical department of practice under ordinary circumstances at all.

I presume that it is not expected that I should go over the entire field of operative dentistry, therefore I shall only treat the subject in a broad, general, and discursive way, and leave the details to be brought out by the paper which is to immediately follow.

Among our 15,000 dentists, what proportion of them are suc-

cessful as operators? That a large portion of the members of our profession are eminently successful is true. By far the largest portion of the dentists of this country are not in any sense successful as operators. There are certain essential elements of success that are requisite in every operator. If he is in possession of these, and puts them into faithful execution, he is bound to achieve success; but on the other hand, if deprived of them, failure is a natural consequence.

1. Education.—First in the list of the essential elements of success, is education. This is of fundamental importance to any one that aims at anything like success, and underlies all scientific practice. Any one, before entering the dental profession, should be well assured that he has the natural inherent fitness and the adaptation in order to the acquisition of skill as a manipulator. Both a good student and a good manipulator is important to constitute a successful dentist. Many in our profession are studious, but very poor manipulators; dependent sometimes upon improper training, but more frequently upon deficient natural endowment. By assiduous industry, patient perseverance and special advantages, this may, in some instances, be to a very great extent overcome, but in very many others this deficiency is utterly beyond remedy. There is another class who are good manipulators but are not good students; willing to perform any of the manual duties incident to a dental practice, but very little inclined to purely mental labor or study.

Both these classes are found in our profession, and in very considerable numbers, too; but they are not as successful as they should be, nor, as they could be, if they would combine the very best trained manipulative ability with the most thorough culture. In other words, to attain the highest results the operator should be able to perform with the hands, any and all operations, according to the highest mental conceptions of what a perfect operation should be.

In order to achieve successful results what then should be our aim in an educational aspect? What is education? It is not merely accumulating facts, principles, or knowledge. These are important, it is true; but they are only the instruments that are to be utilized in the future; but it also means to develop, draw out, strengthen and train the mental faculties so that the materi-

als may be treasured up and employed to secure the most efficient success.

As in almost all other departments of human occupation, superficiality has been, and is still, the bane of the dental profession. The wild folly is widely entertained that anybody can practice dentistry. But this absurd idea must be eradicated from the minds of the American people. There must be more professional education, more intellectual discipline, more culture, more breadth and comprehensiveness in the masses of our profession, if they ever attain the successful results so much to be desired. The high and grave responsibilities of the profession must have recognition and acknowledgment. A position in our profession must be attainable only through gates as straight and ways as narrow as those that lead to the legal or the medical profession, for the science and practice of dentistry demand talent, capabilities, knowledge and culture, as great as either of these.

To make education as proficient an element of success as its capabilities will admit, it should be comprehensive, thorough and progressive. Broad enough to embrace not only dental science, but every department of medical science. This education, this self-training, this earnest mental application and devoted study for our general advancement and professional success should not be kept up for a year or so after commencing practice and then abandoned, but should be a continual earnest life business with us if we wish to succeed. Especially, operative dentistry, oral surgery, physiology, histology, pathology, chemistry and dental therapeutics should be thoroughly studied up to their present development. I do not mean by this that we should cumber the memory with difficult technicalities, but that we should become so familiar with them, that mere names would dwindle into insignificance. This knowledge should become such a part of our professional personality that it ever can be held in reserve, and thus can we call it up under any emergency.

Superadded to education as an auxiliary element of success, is literary culture. We are, as a profession, brought into close and intimate relations with the most refined, educated and cultured classes of society. This being true, every one who desires to secure this class of society as his patrons, must possess literary culture. Every dentist needs it; it will make him a better as well as a more successful dentist. It gives him influence

and greatly extends the sphere of his usefulness. A dentist should not be content to be a mere dentist. He should know something at least about literature and be able to converse well, act well, and appear well, not only in the dental office, or dental society, but also in the drawing room or the public assembly.

A man will be a better lawyer, a better physician, a better preacher or a better dentist, for having literary culture. The truth of this is so obvious as to need no argument. Indeed, literary culture is needed by every professional man, because it is calculated to improve the taste, to refine the manners, to enrich the mind, to elevate the morals, to give more power, in short; it will make one happier, wiser, better and more successful.

2. Skill.—This is pre-eminently an element of success to every operator who possesses it. Indeed, without skill there can be no success, but on the other hand, continual failures and disappointments. "Skill, both in operating and remedial practice is principally acquired, and is the result of professional knowledge, extensive observation and practical experience. Then there are some who can never acquire skill, no matter how diligently and conscientiously they apply themselves; they seem to have no natural faculty for the acquisition of this much needed element of success."

Seeing then that they can never rise above the point of mediocrity as operators, the duty of such men is very plain. They should, as a matter of justice to their patients, themselves and the profession, hasten to transfer their labors to some other vocation or sphere of usefulness. "Then there are others who seem to have, in a very marked degree, this natural ability or aptitude for the acquisition of skill, and very soon make not only very fine operators, but are very successful in the treatment of oral diseases. Again, there are others who seem at first to be deficient in natural ability or aptitude, that are able by a careful training of the hands and a conscientious and energetic mental effort to finally overcome this, and, in time, to arrive at a very high degree of success in every department of practice." There is, perhaps, still another class who have the natural ability, if properly developed, to make very skillful operators, but who from deficient education and a want of proper manipulative training and accomplished models as guides in operating, their efforts more frequently fail than succeed. This class in our profes-

sion should immediately avail themselves of all opportunities for the proper cultivation of their minds, and of the requisite training of the hands to secure skill and success in manipulating. If this is done with a thorough will, and a conscientious and honest determination to succeed, the avenues of success will be found open; skill will be readily acquired, that ultimately brings with it rapid improvement and triumphant results and success.

In order to achieve the highest degree of success, we must not only be skillful manipulators, but we must also be skillful in the treatment of all pathological conditions of the oral cavity. Many seem to entertain the idea that skill in manipulating is alone necessary; and, consequently, they make little or no effort to acquire it in all the departments of our profession. But if one desires true success in the highest degree he must be skillful, not only in operating, but in every department of practice.

3. *Thoroughness.*—The importance of this as an element of success in conservative practice cannot be too highly insisted upon. “Thoroughness is an application of our highest skill; and though it may be considered as having been embraced in the consideration of the subject of skill, as necessarily a part of it, yet its importance demands special notice. We may have every other requisite for success, yet if this is lacking we can not hope to attain the highest results, unless this element is ever prominent in every operation that we perform. The thorough preparation of cavities in filling teeth; the careful removal of all imperfect dentine and enamel from the margin of cavities; the smoothing and polishing of the edges; the careful packing of every piece of gold; the thorough finish given to the filling on every surface—in fact, thoroughness in every step of the operation from its commencement to its completion, is essential to the highest success.”

In the removal of pulps; the treatment of alveolar abscesses; removing deposits of tartar; regulating the teeth; treating any of the abnormal conditions of the oral cavity—in fact, everything we are called upon to do, should be done in a conscientiously thorough manner, if we desire to secure the highest and most successful results. When we have made this the rule of our life in practice, then we shall receive daily testimony that our operations are conserving the dental organs, of duty faithfully performed, which shall reward us for our efforts and stimulate us

to pursue with greater and growing earnestness the only true path to success.

4. *Patience and Perseverance.*—Any one of extended experience in our profession should readily acknowledge the importance of these elements in securing successful results. They are very requisite to success in any vocation; but they are pre-eminently so in the dental profession. We need patience and perseverance to enable us to succeed with our nervous patients. This is especially demanded in our operations upon the teeth of children. We need it in excavating and preparing difficult cavities; in adjusting the rubber dam in extremely difficult places; in starting and inserting many difficult and complicated fillings; in treating alveolar abscesses; in correcting irregularities of the teeth; indeed, I may say that a daily and continual exercise of these elements, under almost innumerable circumstances, is demanded by the operator who aims to make his efforts as thorough and perfect as possible. A want of patience and perseverance has often caused failures when other circumstances were all favorable to success. There is an old Latin proverb which says, "hasten slowly." It is rarely that we find two words which express so much, or contain more food for thought. It would, perhaps, be well for every one of us to make this our motto in our daily practice, in order to secure the best results.

In every instance where these two elements are wanting, the operator should at once set about a proper course of cultivation to secure them, in a sufficient degree, to meet any emergency that may ever arise in an extended practice.

5. *Industry.*—This is another one of the elements of success in any vocation in life; but none the less so in our profession. All other things being equal, the industrious operator will always be more successful in his results than those who are destitute of this element. The industrious operator is not continually seeking the easiest methods of doing everything, irrespective of successful results; whilst those who are wanting in this essential are always disposed to get along with the least possible physical or mental efforts, let the results be to the patient what they may. One may possess all the above mentioned requisites for success, and if yet lacking industry, he will fail for the want of something to bring these into action. There is, perhaps, a very large class in

our profession who are groping along in the old ruts and grooves of many years ago: constantly meeting with failures and disappointments, who could, if they possessed the requisite energy and industry, become very successful and creditable operators.

We owe much at the present time to the industry and perseverance of many noble and magnanimous spirits in our profession for its present efficiency and exalted position; but there is yet much to be done. There are many scientific problems that need investigation and solution; some erroneous theories and methods of practice to be corrected; much laborious effort is needed in the education and elevation of the entire profession to a higher plane of usefulness, and the accomplishment of greater and more permanent results. To accomplish all of this, we need an untiring energy and industry that will never permit us to cease our efforts until these desirable results are fully realized.

There are many noble examples on record of what may be accomplished by patient industry and energy. It was industry that made Elihu Burritt one of the finest linguists of this or any other age; it was this that made Dr. Franklin a philosopher and a statesman; it is this that enables Dr. S. D. Gross to accomplish so much literary labor amidst a large and lucrative surgical practice; it was this that enabled Disraeli to work out such an eminent public career. His first achievements were in literature; and he reached success only through repeated failures. As an orator, too, his first appearance was a failure. Though composed in a grand and ambitious strain, every sentence was hailed with "loud laughter." But he concluded with a sentence that embodied a prophecy. Mortified at his failure he exclaimed: "I have begun several times many things and have succeeded in them at last. I shall sit down now, but the time will come when you will hear me." The time did come, and the manner in which he succeeded in commanding the rapt attention of the British House of Commons, affords a striking illustration of what industry, determination and energy will do, for Disraeli earned his position by dint of patient industry. He worked patiently for success, and it came, but slowly; then the House laughed with him, instead of at him.

Let these examples stimulate us to renewed efforts in our professional career, and may we, by dint of perseverance and

industry, work out success for ourselves and for the profession of our choice.

6. Professional Integrity.—Perhaps no one will deny that every dentist should be a man of virtuous principles, pure life and stainless reputation. No one of ignoble character, depraved principles, or corrupt practices, can ever expect success in our profession. Aside from the irrevocable obligations written and unwritten, resting upon all men to be good and true — obligations which all feel, and from which none can escape; and aside from all the considerations of the exquisite and exalted personal happiness that springs from conscious rectitude of heart and life, there is, in the case of dentists, a positive and enormous element of success arising from the consciousness of genuine nobility of soul and integrity of life. Deny it who may, it is nevertheless true, that other requisites for success being substantially equal, the operator of genuine integrity will always secure better and more permanent results than the operator that is destitute of this qualification. The one possessing integrity is actuated by a higher, purer and nobler motive than simply the acquisition of his fee. It is his earnest desire and determination to bestow his highest skill on every case without regard to his remuneration in mere dollars and cents. On the other hand the dentist who is wanting in integrity is actuated by no higher motive than to secure his fee in the easiest or by the shortest way known to him, irrespective of the results of his operations in a conservative point of view. The honest operator seeks always under all circumstances the highest good of his patients by the use of the best materials, by adopting the most approved methods of operating, by giving to his patients such instructions as will tend to preserve the dental organs in the future. Integrity is requisite even if one has no higher motive than mere pecuniary success. The old maxim, "Honesty is the best policy," is as true in regard to the practice of our profession as in any other pursuit in life. Seeming to be honest is not enough; this goes far and does much, but there is that in the genuine which cannot be counterfeited to the deception of others, even while to the mere seamer of integrity there is ever present to his every introspective glance, failures, desolate wastes, and to his patients bitter regrets and disappointments. Can it be that in the perpetual shadow of such a background, the

starless night of such a want of integrity, the dentist's soul will not be tinged, his work affected, his powers lessened?

7. A spirit of Progressiveness.—I think that this may be safely classed as an element of success, when we take into consideration the fact that it is a leading characteristic of all the most eminently successful operators in our profession. An operator who has this progressive spirit is ever on the alert for any improved methods of operating that give undoubted evidence of greater success; for any superior mode of treating the diseased conditions of the oral cavity that are calculated to secure quicker and better results than by his old plans of treatment. The progressive operator is never satisfied with his present attainments; but is ever ready to avail himself of any means that will render his operations more nearly perfect. With this view ever prominent in his mind he procures and diligently studies all the text books; takes and reads the dental journals; is a member of one or more dental societies, and works in every practical way for his own advancement and elevation, and of the profession at large. The progress of dental science was never so rapid as at the present time. Investigation was never before so vigorously prosecuted — assisted as now by the appliances of research. Observation was never so acute; experimentation so thorough; reflection so profound or record so complete. New facts are in process of development, new theories being presented, and new modes of treating diseased conditions of the oral cavity suggested; new instruments and appliances are invented that are calculated to facilitate and better our operations and heighten our labors. No matter what may be the attainments of an operator to-day, or what his methods of practice, if he does not keep pace with this rapid progress of the profession he will in a short time be far behind it, both in theory and in his methods of operating. He may meet his own expectations in regard to his results, for they will necessarily not be very great; but he will fail to meet the increasing demand of an enlightened public, and the demands he justly owes to his profession. He will soon lose all professional feeling and interest in the profession. "Every man," said Webster, "owes a debt to his profession." By this, we understand that every man is under obligation to do what he can for the elevation of his profession. We would then advise all dentists who wish to make success sure, to unite heartily in every effort and plan designed for the good

of our profession. By thus doing, our own personal profit and advancement will be secured.

Who of us is satisfied? Nay, who of us, comparing the actual with the possible—the present with the hoped for, and the should be and the may be in our profession, is not ready to labor on until the bright anticipations of the future are fully realized.

Let us then work on, feeling a just pride in our calling, and with a determination that will succeed in spreading the truths of dental science over the land, and whispering in their ears these stirring and beautiful lines of Longfellow :

“Lives of great men all remind us
We can make our lives sublime,
And departing leave behind us
Footprints on the sands of time.

“Let us then be up and doing
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait.”

—*Illinois Transactions.*

[Read before the Illinois State Dental Society, May, 1882.]

METHODS AND MATERIALS FOR SAVING TEETH.

BY DR. J. N. CROUSE, OF CHICAGO.

WE may be well versed in pathology, therapeutics, chemistry, dental education and other subjects directly or indirectly connected with our profession, and yet fail to save the teeth through a lack of that knowledge and judgment which enables one to decide wisely as to the best methods and materials to be used in each given case. Too large a per cent. of the operations on the teeth are failures. The causes of these failures are numerous. The teeth may have been frail and imperfect in formation; the elements necessary for good tooth structure deficient; these causes combined with vitiated secretions of the mouth produce a condition favoring dental caries. Under such circumstances we must expect a large per cent. of our operations to fail. Again, the patient may be so negligent in the matter of keeping the teeth clean that caries will recur and the patient's lack of care be

the chief cause of failure in cases where with good care and cleanliness the operations would have been successful. On the other hand, much too large a per cent. of the operations fail on account of not being properly performed.

The first cause of failure named, defective tooth structure, can be corrected only in the formative stage and cannot be treated of at any length in this paper. The treatment of this class of teeth, also those that suffer for lack of care and cleanliness, will be discussed further on. We will first consider the third cause of failure named, defective and improper treatment of the teeth on the part of the dentist, and see if this cause cannot be removed, to some extent, by a free discussion of the methods and materials best to be used in each given case.

If all the teeth of civilized mankind were regular and well formed, and our patients all gave their mouths the care they should have, we might disband our societies, close all the dental schools, shut up our offices and be free men. But unfortunately (or fortunately, which ever it may be) this is far from being the case, and we must treat of a very different condition of humanity.

The difficulties which come to us in the line of dental caries and defects, are so varied in character that the treatment of different cases must be widely dissimilar both as to methods and materials. If the patient comes to us before caries has made much progress, in many instances where decay has attacked the approximal surfaces, the cavities can be removed by cutting away the surfaces and polishing, and farther destruction be prevented better than by filling. Especially is this true of the six upper front teeth. In these teeth, small and medium cavities can be removed by cutting or hollowing out the inner approximal surfaces without destroying or affecting the appearance of the teeth. Owing to the small or thin surfaces which come together and to the greater certainty of their being kept clean, decay is not nearly so likely to recur. Even where decay has gone so deep that it does not seem best to entirely remove the cavity, if the approximal surfaces are cut so that they are readily kept clean, decay will generally be arrested. Nature will stop the cavity, or in other words, re-calcification will take place.

The same practice holds good on the approximal surfaces of all the teeth, but not to so great an extent for the reason that it is not always so easy to remove the cavity without cutting away

more of the tooth than is desirable. There is some danger of interfering with the patient's comfort in chewing, by making such a space that food will wedge between the teeth; besides they are not so likely to be kept clean, as it requires more effort to keep such separations clean, and the teeth of young patients will frequently change position so as to close the spaces. Yet if there is a decided disposition for these approximal surfaces to decay, the only salvation of the teeth is to separate freely, and by thus doing, if the decay is not too extensive, the cavities can be removed or so nearly so as to obviate the necessity of filling.

After the six year molars have erupted and before the temporary molars are lost, it is a good plan, in a majority of cases, to cut the temporary molars away so as to leave a free and liberal space between them and the permanent molars, thus avoiding decay of the latter, which occurs too frequently if they are left in contact. The same holds good in the superior temporary cuspids after the permanent superior incisors have erupted; the necessity for this is not so universal as in case of the molars, and yet cavities will often occur on the approximal surfaces of the permanent lateral incisors where this precaution is neglected. Again, if on examining the six year molars soon after they are erupted we find the fissures very deep, and shaped so that particles of food lodge and remain in these spaces, it is a good plan to cut them out so that they can be more readily kept clean. This precaution if taken in time will often avoid the decay which is almost inevitable if the teeth cannot readily be kept clean. This preventive practice has grown in favor with me from year to year as I have seen its practical results. If all cases reached us in time to be treated in this way much of the loss of tooth structure would be prevented and much suffering avoided. Unfortunately we too often do not see the patient or do not find the decay until it has progressed so far that filling has become a necessity.

Just here let me urge great care in making examinations. I believe that want of thoroughness in making examinations is one of the most frequent mistakes made in dental practice. Let every cavity and place, where caries has commenced, be found and promptly attended to. I know that it is often difficult to find all the cavities where the teeth are close together, and it will frequently be found necessary to wedge the teeth apart before we can make a perfect examination. After we have made a careful

examination and removed such cavities found as can best be removed by burs, chisels, etc., the next thing is to fill such cavities as we find that are too large to be thus removed, or perhaps are located where this method cannot be used to advantage.

When the decay is on the approximal surfaces of the teeth, the first step is to secure room enough to make a perfect operation. This space must be obtained by wedging the teeth apart, (allowing them to come together again after they are filled) or by cutting the teeth. This brings us to a very responsible part of our practice. To decide when and how teeth should be separated, in each given case, requires as much careful thought and good judgment as any part of dental practice. Each case presents particular characteristics, so there can be no general rule to govern us. Radical separating in one case may be the only alternative, while to pursue the same method in the next might be doing injury enough to condemn both the practice and the operator. To discuss this part of our practice thoroughly would consume far more time than I should be warranted in taking in this paper. I shall, therefore, only cite certain conditions where separating is generally beneficial. There can be no good objection to separating the six front teeth, as described, in removing superficial decay. I should also recommend leaving these teeth in this shape after filling. Neither can there be any valid objections to cutting away the temporary teeth to save the permanent ones as before referred to.

Where decay is taking place extensively and rapidly on the approximal surfaces, the teeth are frail and the secretions of the mouth unhealthy, the chances of success in saving the teeth are much in favor of free and radical separations; but it must always be remembered that much depends upon how thoroughly the patient cares for the teeth. If on the other hand the teeth are not decaying rapidly and are of a good character, the secretions of the mouth are healthy and the patient is careful as to their cleanliness, I should consider it bad practice to impair the chewing apparatus by cutting the teeth apart. In such cases it is better to wedge the teeth apart when space is required; generally, however, most of the room needed is secured by cutting through from the crown in the case of the molars and bicuspid. Having secured ample room to get at the cavity or cavities needing filling, and having removed all the defective edges and walls that

are too thin to be relied upon, apply something to relieve the extremely sensitive condition of the cavity, say aconite or carbolic acid. If neither of these gives relief and the decay has not reached too near the pulp, apply a little glacial phosphoric acid or chloride of zinc. Some of these remedies will produce some pain for a few minutes but will save the patient from much suffering while the cavity is being prepared. Now with some good stone-cut burs and excavators (don't work with dull, worn out instruments) remove the decay around the edges of the cavity, but be sure and not remove enough to uncover the pulp if decay has reached that far. It is much better to leave the decay in the bottom of the cavity than to expose the pulp. After applying carbolic acid to this portion of the decay left in the cavity, cover it and the pulp with oxy-chloride of zinc, or if the pulp is in no danger of exposure and there are deep undercuts which will be hard to reach if you fill with gold, fill them with some of the preparations of zinc filling. Before securing anchorage, let us see what material we will use. I will class together all the plastic materials, such as oxy-chloride, phosphate of zinc, in fact, all the plastic fillings except amalgam, as temporary, and not to be relied upon as permanent fillings. Next in order comes Hill's Stopping and the different preparations of gutta-percha. The best of these, I think, is the red or pink gutta-percha used for trial plates in making artificial teeth. I have seen some of these materials in favorable places, where the force of mastication did not come upon them, do very good service; but, as a general thing, they should not be relied upon as permanent filling materials. If I am correct in this statement, we are left with but three filling materials which can be classed as safe to use as permanent fillings, viz.: amalgam, tin and gold. *Amalgam*, what shall we say of it? That much used and much abused material; that monster which has been the cause of so much contention; it must have fair treatment at our hands for we could hardly dispense with it altogether, and properly used it serves a good purpose. In mouths where the teeth are frail and much decayed, the secretions unhealthy, where fillings of any material would need frequent removals or repairing, amalgam can be used in the back teeth to good advantage; also where the cavity is so far back in the mouth or at such location as to make it uncertain about getting a perfect filling of gold; also where there is much decay

in the back teeth, and the patient is entirely unable to pay for gold. In such cases amalgam answers a good purpose.

Excepting in extreme cases, I much prefer tin or gold to anything else now in use. Tin is not much used, but is a splendid material for filling, where the force of mastication does not reach it. It is neither hard nor strong enough to resist the force of chewing. This and the color prevents it from being good for general use. It has often served a good purpose in my practice. When the six year molars are decaying before they have their full growth, it can be packed into the imperfect fissures without much preparation of the cavity and under water, if it is not convenient to keep the cavity dry, and will last for several years or until the teeth have their growth and can be filled with gold to advantage. It is also useful in approximal cavities of the back teeth, and in cervical margins that are hard to reach and finish with gold. The balance of the teeth we fill in this paper will be with gold, that material which has stood the test of time and at present has no rival. My preference is for non-cohesive gold, No. 3, except where I wish to restore the contour of the tooth, then I use cohesive gold, No. 10. When we left off with the preparation of our cavity, we had removed all the decay around the margins, and had covered the decay over the pulps with oxychloride of zinc. We are making an approximal filling in a molar or bicuspid. In using soft gold, we never make retaining pits, but make a slight groove or undercut at different parts of the cavity not far from the edge, unless the cavity has sufficient undercuts. When I think a cavity is ready, I take a magnifying glass and mouth mirror, throw the light into the cavity and see if the edges are all perfect. Now take a sheet of gold and make a ribbon a little wider than the depth of the cavity. Roll this on the end of a broach into a cylinder which is large enough to cover the floor or cervical margin of the cavity. Sometimes I use several of these cylinders, wedging them in side by side unannealed, till my cavity is nearly full to the grinding surface, the gold extending beyond the cavity; then I drive a little cohesive gold, No. 10, into and between the cylinders with a sharp pointed plugger, then with a foot plugger drive the entire mass home laterally. The lower part of the cavity, if cut through the grinding surface of the tooth, can be finished with cohesive gold.

The same method is pursued when pellets are used instead of cylinders, or when the two are combined. The advantage gained by driving the cohesive gold into the soft or unannealed gold before thoroughly condensing is, that if it is found that more gold is needed to make the desired fullness, it is easier to add to this cohesive surface, and the filling takes a better finish. Care is needed in the use of the mallet not to break or injure the walls. Just as good a filling can be made by using cohesive gold alone but it will take much longer. In case we are restoring the contour of the tooth, cohesive gold must be used, starting with retaining pits, condensing every piece as we go with the mallet, then finish the filling with emery strips, disks, burs, etc. We must be sure and have all the overlapping edges dressed off, taking special care of the cervical margins. The matter of cleanliness and care on the part of the patient is of the utmost importance. This should be urged and insisted upon from time to time as we examine the teeth at different sittings and find the patient not carrying out our instructions. In case of children, it will generally be found necessary to call in the aid of their parents. It should be thoroughly impressed upon them that unless the food is removed from between the teeth with picks (I prefer a small quill) and floss silk, and the brush is used thoroughly, that what we have done will be of but little use.

In treating a subject which involves so many points, it is impossible in a paper like this, to give all the details of each part of the operation. I have attempted, as briefly as the subject would allow, to lay out a conservative line of practice, believing it the best plan to use what ever is good in different methods of practice, adopting which ever seems best for each particular case. I would always advise conservatism in this. On the other hand, I am radical as to how any plan which may be adopted is carried out, whatever method or materials are used; let every part of the operation be thorough. The cavity should be as thoroughly prepared for one material as another. Let no operation go from the hand until it is as good as can be made. To do this requires a great amount of hard, diligent, mental and physical labor. No one can render good service at all times without constant, hard labor. Having done our entire duty, we are then in a condition to insist upon good compensation from those we serve. For there can be no service which deserves better compensation when

rightly performed than that of the dentist. Thanking you for your attention, I will leave the subject for you to bring out individually what ever I have omitted.

THE PROFESSION AND PATENTS.

BY W. STORER HOWE, D. D. S.

[Read before the Cincinnati Dental Society, October 10, 1882.]

THERE has been hitherto much written, and more said, by members of the various branches of the healing profession in denunciation of patents for inventions relating to any of the departments of medicine or surgery; and there is, therefore, a prevailing sentiment to the effect that it is very unprofessional to patent a device, or compound, or process designed to alleviate pain, to heal disease, or to save life. If now, it can be shown that those denunciations have been based on either ignorance or a hypocritical pretense, and that thus the resultant sentiment is a delusion and a snare, involving indescribable professional debasement and dishonor, then those earnest if feeble words of warning will not have been uttered in vain.

In the first place, an invention duly declared and secured by Letters Patent, is the legal property of the inventor by a title at once original, simple and definite; to a degree unequaled by any other class of property known to the writer, because the new thing first comes forth from the inventor, and the law establishes the fact that the fee is immediately from the Sovereign of all the earth, a man's right to his own child having no clearer legal establishment than "that of the inventor to his invention;" the rightful control of the earnings of the offspring being for nearly the same lawful term in both cases.

We have then at the outset an indubitable possessive-case premise, to-wit: that the inventor is the first owner of the invention to which he is declared legally entitled by the patent, it follows that the person who takes that property without the knowledge or permission of the inventor, is a trespasser or thief, if aware of the inventor's good title.

Years and years ago, as we suppose, a surgeon conceived and

materialized in fine steel the bistoury, which, in its peculiar form and adaptation embodied many an hour of thought and patient observation, and of sympathy with the unavoidable suffering occasioned by even the most skillful use of the rude butcher-knife; but in that early time the surgeon's only fee for his inventions lay in his own thereby increased success, which, when his honorable professional brethren saw, and learned, was in the present instance largely owing to the new device, they straightway sought the cutler, one by one, and each besought that he would make another knife like Dr. Blank's.

Of course the cutler yielded to the solicitations of the noble gentleman, and got cash for the forgery which enabled his honorable partners in the professional steel to do better work and get more pay at the unwitting expense of Dr. Blank, who, if aware of his loss, was of course too much of a professional gentleman to object to the taking of his property, since it was invented to save life.

Years later it would seem that a young graduate, fresh from the honorable teaching of the honorable faculty, had a call to a capital case, but his instrument case contained no bistoury, such as the clinical instructor had demonstrated to be necessary in such cases *to save life*, nor had our honorable young surgeon any cash, but he at once formed an appropriate resolution, or, as perhaps we should say, a resolution to appropriate, and straight he went to the cutler, asking to be shown a sharp bistoury. Yes, that will do, he blandly said, I will take this *to save a life*. But the cutler quickly said, pay me three dollars for my improved knife, or else "go use an old one."

But I am called to a capital case, and I need your improved knife *to save life*; surely your sense of honor is too keen to let any mercenary motive obstruct the march of humanity. I have no money, and I must have the knife; further delay may lay the charge of murder at your door! Out spake the irate cutler, lay you down my knife, and get you out that door, and go you for a doctor who pays for tools to do the surgery the patient pays him for, and deem me not the fool to heed your selfish sophistry, to-wit,—that, for the good of man, I am bound to forge free knives for you to use in saving life, while then you pocket knife, and praise, and also the cash! Go to! The product of my toil and skill is mine, and worth a price in cash to him who, with my

knife, would fain set out to carve flesh not merely with nerve, but fame and fortune!

The cutler's keen reply lays bare the heart, the hypocrisy of swindling professors, who, from his day to ours, have entrapped honorable men into a communism which pretends that a professor of the healing art can have no healing art property that a brother doctor may not appropriate to his own use on the plea that he needs it to *save life*; but only the more ancient and honorable professors understand this corollary, unpublished *saving* clause, to the effect that the inventor's property is needed to save a dying reputation, and also to save the life, saves fee which otherwise might have gone to the inventor himself. The history of the dental profession, is mainly a record of improvements, many of which were not immediately designed to *save life*, but the desire for recognition as a branch of the medical profession, has led also to the adoption of the fraudulent fallacy "that the patenting of dental improvements is unprofessional."

The limits of this paper preclude a review of dental history, and, therefore, only a few illustrative instances will be cited.

Nearly every American dentist is familiar with the instruments known as Harris's forceps, but is there any person who knows that Dr. Harris was ever paid anything for that property which, with the honorable(?) mockery of his affixed name, is to this day a source of revenue in shops and offices to men, who under the dishonorable and debasing teachings of professional anti-patent instructors, can hear without a blush that Chapin A. Harris died poor, so poor that his wife was, through sheer want, constrained to accept from the dentists of the United States a paltry contribution of less than a hundred dollars!! which by reason of her woeful want, she could not spurn back into their honorable clutches, whereas, a patent would have compelled the payment to Dr. Harris of a part of the money made by the use of his improvement, and at the same time would have conserved the true honor of the profession.

A later and a living instance is seen in the case of Dr. Barnum, whose name even is not attached to his invention, and whose property in equity is trespassed on to-day by probably ten thousand dentists, scarce one of whom even thinks, or thinking, cares that he is filching money from the helpless victim of false professional counselors, who persuaded Dr. Barnum that it would

be unprofessional to patent his invention! and so insidious has been the defilement of such teaching that many dentists have banded together and subscribed more money to nullify lawful patents than it would cost to have honorably paid for the rightful use of the improvements, which, indeed, had practical value enough to incite some members of the profession to steal outright, and one to even commit murder!

The baleful tendency of such false treachery cannot be overstated, for it is already a common event to find business rascals shamelessly dealing with the profession on the, alas too well-founded assumption, that a few cents less on the dozen will tempt an ordinary dentist to break the well-known patent law of his country, and defraud a brother dentist of his property; yet so subtile has been the distinction of true professional honor under the anti-patent code, that probably many an honorable offender will be scarcely aware that he has sunk so easily, so low, and it is even possible that some such one may venture to come forward in defense of the ethics which have hitherto made dishonor so successfully to wear the guise of honor. But our profession is young and vigorous, and through its associations coming into a majority that will be satisfied with only clear, sound thinking for the purpose of manly, equitable practice; therefore, it is high time for us to establish some conclusions equivalent to the following as the basis for honorable professional action:

First. It is the profession of the dentist to prolong life.

Second. The profession implies equipment for the practice.

Third. An honorable equipment is acquired (A) by gift, (B) by purchase, or (C) by invention, and such equipment is the personal property of the dentist, who is thereby enabled to prolong the life of the patient; and he in his turn, pays for so much of that property as may have been expended to prolong his life.

(A). Gifts may be properly received through inheritance, or from a friend whose intimacy justifies presents; but a nice sense of honor will permit no gifts from an unfamiliar source, without an immediate return of either the gift, or its equivalent in some form and the gentlemanly giver, when called to bestow where no recompense can be made, always prevents mortification by in some way assuring the poor receiver that the pleasure of having his presents received in the same spirit with which they are given, is a rare, and ample compensation.

(B). Purchases are mere exchanges of property, and the honorable professional man will neither give nor take anything except upon the basis of a fair exchange.

(C). Inventions are, as we have shown, property, and an honest dentist in these days of false ethics, and worse practice, is certainly a gentleman to be sought after, and most likely to be found in some Association which has in its constitution something like the following :

Article 7. An invention is the property of the inventor, who ought to define, and secure the same by letters patent; and in this Association it should be dishonorable to the degree of expulsion for a member to knowingly use the invention of another without permission, or due compensation.

Article 9. A member may become an Honorary Member by the payment of one dollar into the Restitution Fund for the widow of Dr. Chapin A. Harris, and three dollars annual dues for fifteen consecutive years to Dr. Barnum, or his legal representatives.

The JOURNAL endeavors to ventilate, as well as give light. The above article opens up matters miscellaneously. We disagree with the author about the murder ; no proof that it occurred.—Ed.

A NEW PHASE OF THE AMALGAM QUESTION.

BY MELVILLE C. KEITH, M. D.

[Concluded from page 458.]

FARADAY asserted the non-existence of a "current," and held to the theory "that the resulting phenomena are caused by a polarization of the molecules of the medium." (See American Cyclopaedia, article "Galvanism," page 587). But the term "*current*" conveys the idea, and we so use it, as explanatory of an influence or force, which is designated as electricity. And, if one might decide from the quotations and the authorities cited, our former assertion, "that amalgams formed a battery," might be supplanted by one that *under all conditions, in every place, from the inherent quality of the metals combined to form the amalgam, the fillings known as mercurial, are in themselves the*

prime factor of a battery, and that this battery is powerful enough in its electrolytic effect to dissolve or change the atoms of the brain as well as destroy the visual and aural apparatus.

The first assertion to be met, that this electricity is "beneficial," is from "Flagg's Student Editing Quiz Questions," and is deserving of notice only as emanating from authority, so distinguished a place of learning as the "Philadelphia Dental College."

In that book "Quiz Questions and Dental Pathology," it is asserted that the continuous galvanic current is "BENEFICIAL." Now, if the existence of a current be conceded, (the writer is of the opinion that it cannot be denied, and moreover that the existence of electricity generated from amalgam and an acid, and a mercurial filling, whether of copper, tin, zinc or palladium, and salt, or rather the chlorine from the NaCl will be yet plainly demonstrable). It will also be conceded *that this current is always continuous.*

Our individual assertions are only valuable so far as we can fortify them by facts or prove them from the researches of others. If the amalgam advocate who "arranged" "Quiz Questions" had devoted a little of his spare time to the subject matter of which he wrote, he would have found that all authorities, without exception, *condemn the application of continuous current.*

Messrs. Beard and Rockwell, than whom none stand higher in the United States, both gentlemen being Fellows of the New York Academy of Medicine, and members of the American Academy of Medicine, etc., etc., assert in their Medical Electricity, page 244: "Ordinary stimulating and tonic medicines are given one, two and usually three times a day. The dose of electricity cannot usually be administered so frequently without doing more evil than good. It seems essential to the electro-therapeutical treatment, whatever the mode employed—general and local faradization, central and local galvanization, and even electric baths and the use of body batteries, that there should be *a considerable period of rest between the applications.*"

Electrization sets in motion forces that slowly act and react hours after the electrization has ceased. And yet Mr. Wm. C. Foulks, D. D. S., declares that the current can be continued, and "beneficial," indefinitely, or as long as a person lives and wears a plate, or as long as one is able to have a tooth filled with amalgam and gold. In his deprecatory preface, Mr. Wm. C. Foulks as-

surely is he only "arranged" the book, while Dr. Flagg is the real author. We readily believe it. Any one claiming to be President of a "Quiz," or any one allowing his name in the front of a book purporting to be on "Dental Pathology," filled with absurdities as the "Quiz" is, can successfully set up a claim to no originality, and also claim ignorance of everything passing in the scientific world of to-day. In short, Wm. C. Foulks, D. D. S., writes himself down a goose of the first water, when he permits himself to assert that any therapeutic agent continuously applied can be "beneficial." Yet, this is precisely what this D. D. S. deposes.

"Ans. From the gentle continuous and stimulating galvanic action which is exerted, a beneficial effect is produced upon the mouth, and even upon the general health." See page 28 of Quiz Questions and Dental Pathology, to be taught to the students of the Philadelphia Dental College.

If at the date of its publication, 1882, the "Quiz Question" President had read up on galvanism, he would have found that the immortal Remak discovered that "the galvanic current alone exercises a direct action upon the organs of special senses, as well as upon the nervous centers. The galvanic current, but not the induced currents, produces the electro-tonic state in the nerves and nervous centers, and that one of the chief advantages of the galvanic current is, that, in a painless way and without a shock, we can introduce into the system a large amount of electricity." (See Galvano-Therapeutics, page 12, by William B. Neftel, M. D., fourth edition, Appleton & Co.) And he could have read in "Clinical Uses of Electricity," by J. Russell Reynolds, page 104, that "Electricity is one of the most powerful agents that you can employ in the treatment of disease; but it is useful, useless or mischievous, according to the manner in which it is applied." And hence, when a thing purporting to be "for the benefit and guidance of the students" of a dental college is published, even if there is "no claim to originality" made, the public have a right to demand that the publisher or editor shall know at least something of what he is writing about. But Wm. C. Foulks, D. D. S., had not read any farther than the brown covered gilt embossed Plastics, and evidently had not brains enough to make any claim for originality, or to have any idea of anything beyond J. Foster Flagg's *ipse dixit*.

We may dismiss this latest advocate of amalgam fillings, and

bid good-bye to Dr. J. Foster Flagg's heroic endeavors to extricate himself from his amalgam slough, with the following quotation from Althan's, page 331, Medical Electricity, 3d edition :

"A powerful continuous current applied to the brain may produce giddiness, fulness, and pain in the head, sickness, vomiting, blindness, and attacks of cerebral hemorrhage, followed by general paralysis. *The same symptoms may be caused by the too prolonged application of a feeble current. Sapienti sat.*" (My italics.)

The reason, or one of the reasons, why fillings of mercurial amalgams are injurious to the teeth, is because,

First. The tooth, provided it is a living tooth, *has a circulation*. While the tooth is alive and the circulation is active, *this tooth can be hardened, preserved, and rendered dense by appropriate constitutional treatment*. As soon as the amalgam filling is in position the current commences. *The vitality of the tooth is destroyed by the electrolytic action of the current generated from, or by the amalgam, and thus "the amalgam is directly injurious to the tooth," and to the teeth.*

Another reason why amalgam fillings are directly injurious to the teeth is *because* all living teeth are nourished through the arteries, nerves, etc., in the pulp. (Wedl, page 55.) Now, an amalgam filling, from its continuous current, changes the molecular arrangement of the maxillary nerve, and this molecular change *prevents the nourishment of the teeth in front of the amalgam filled teeth*; hence, where the lower molars are the ones filled with amalgam, it will be found that the *gums* have wasted, and Riggs' disease is developed, the dentine has become *softened* in all the teeth front of them. This fact, viz.: that *teeth in front of amalgam filled teeth are more liable to decay* than others, is more noticeable in *young persons from fifteen to twenty-five*.

The current generated from the amalgam is injurious to the nerves of the teeth indirectly, because the current being *continuous, produces electrotonus of the maxillary nerves*, and by *keeping up a continuous irritation*, prevents the nerve molecules from remaining in a normal or a healthy condition. *It is this electrotonic condition of the maxillary nerves, arising from amalgam fillings*, that fully explains the great liability of *ladies to have an attack of neuralgia or an attack of sick headache upon the least exposure*. Their teeth, *more especially the molars, being filled*

with a factor of a galvanic battery, the maxillary nerves (and the fifth pair) are in an electrotonic condition, and the least unwonted charge brings on the "attack of *neuralgia*," or headache.

Second. The current from the amalgam filling, produces, or causes a change in the molecules of the maxillary nerves, and also a radical change in the Ganglion of Gasser. By the immediate relation of the *ophthalmic division* of the fifth pair, this irritated and *electrotonic condition* of the *gasserian ganglion* would cause or produce in some instances *muscæ volitantes*; in other cases, *amaurosis* (*amblyopia*), which, as Dunglison informs us, is "an impairment of vision caused by irregularities in the nervous system, or the circulation, which may lead to degenerative atrophy of the optic nerve, and thus produce amaurosis."

This condition being produced by the *continuous current*, from the amalgam filling, through the *gasserian ganglion*, to long ciliary to Iris, short ciliary to Iris, and by connection with Lenticular, Ciliary, or *ophthalmic ganglion* to Motor Oculi.

This *continuous current* from the amalgam filling also causes a molecular change in the aural nerves, from the relation of the *otic ganglion* and *auriculo-temporal*, *tensor tympani*, and branches to *meatus auditorius*.

The muscular twitchings of the eyelid so common among those who have molars filled with mercurial amalgams, can be accounted for in no other way, than as the effect of a current of electricity from the battery situated in the tooth below. These contractions and "twitchings of the eyelids," as the victims describe, are more common in the first six months after the filling than at any other time, although they can commence at any time.

And for these reasons the writer is of the opinion that persons with weak eyes or failing sight, or any one with impairment of the aural apparatus, especially with defective teeth and amalgam filled teeth, should consult an *educated and scientific dentist*, rather than a specialist, because in very many instances the dentist's skill alone is capable of permanently benefitting these organs of special sense. And the term "*educated and scientific dentist*" is not used in any sense to designate or include the ordinary amalgam tooth stuffer.

We now approach the last proposition, made on page 413, viz: that the effect of amalgam as teeth fillings is to cause softening of base of brain.

According to Kirke's (10th edition, page 517), "the pons varolii" is composed principally of transverse fibres connecting the two hemispheres of the cerebellum, and forming its principal commissure. But it includes, interlacing with these, numerous longitudinal fibres which connect the *medulla oblongata* with the cerebrum, and transverse fibres which connect it with the cerebellum. Among the fasciculi of nerve fibres, by which these several parts are connected, the *pons* also contains abundant gray or vesicular substance, which appears irregularly placed among the fibres, and fills up all the interstices.

FUNCTIONS.—The anatomical distribution of the fibres, both transverse and longitudinal, of which the *pons* is composed, is sufficient evidence of its functions as a conductor of impressions from one part of the cerebro-spinal axis to another.

The cortical gray matter of the brain is arranged according to Weynert into five layers, ALL CELLS.

"*The white matter* of the brain, (Kirke), as of the spinal cord, consists of bundles of medullated, and, in the neighborhood of gray matter, of non-medullated nerve fibres, which are held together by delicate connective tissue. The size of the fibres of the brain is usually less than that of the fibres of the spinal cord: the average diameter of the former being about $\frac{1}{10,000}$ of an inch."

We will now introduce some different authority. Dr. I. Rosenthal, Professor of Physiology in the University of Erlangen No. 32, International Scientific Series, "Muscles and Nerves," page 136. The italics are due to the writer:

"*If the nerve is irritated with weak, unvaried currents*, these act on a fresh nerve, *after a time, in exactly the same way as currents* of medium strength, and, after a somewhat longer time, as *powerful currents would have acted.*" In order to understand this, it is necessary to recall our previous experiences of the changes in the excitability at the death of the nerve. We found that in that case the excitability at first rises and attains a maximum before it again falls. Supposing, therefore, a fresh nerve is irritated by means of currents of definite but weak strength, and supposing that this nerve is examined after the lapse of a short time, during which its excitability has risen, it is evident that these weak currents must already act *as would stronger*, and that, *when the excitability has risen yet further, that they will act as* VERY STRONG CURRENTS."

With such authority, and it is believed there is no more reliable or painstaking electrician or physicist in Europe than Dr. I. Rosenthal, it will be seen that *a continued weak*, or an *unvaried weak current* becomes *as powerful as a strong current*, and even if the "PULP IS DEVITALIZED," as recommended by J. Foster Flagg, D. D. S., in his *Plastics and Plastic Filling*, then the maxillary nerve conveys the electric current to the base of the brain. For, although the dental may be devitalized and a "powerless thread, it is YET CAPABLE OF TRANSMITTING ELECTRICITY." (See page 138, *op. cit.*)

One objection will yet be made by advocates of the amalgam, viz.: that it is impossible to have a current transmitted and not felt. We have already shown by Remak, that the galvanic current, in a painless way, is capable of introducing a large amount of electricity into the body; and the last objection is answered when it is stated (Kirke) that the cerebellum "*is itself insensible to irritation*, and may all be cut away without eliciting signs of pain (Longet). Its removal or disorganization is also generally unaccompanied by loss or disorder of sensibility." We will now close.

1st. Amalgam fillings are capable of generating electricity.

2d. This electric current, though weak, has the power, by *being unvaried*, to act as a strong, a VERY POWERFUL CURRENT.

3d. This current destroys the power of nourishment to other teeth. Hence, if one tooth is filled with amalgam, other teeth suffer from lack of nutrition, and as a sequence, decay.

4th. This constant current is certain in every case to impair the eyesight and hearing. And this impairment is more liable to occur after the amalgams have been inserted from three to fifteen years, because of the feebleness of the current, and also because the natural power of RESISTANCE of the body (OHM'S LAW) is *greater* when the amalgams are first inserted.

5th. As the brain of a sane person is undoubtedly in a healthy position, and as the current from a set of amalgam fillings is sent from the amalgam filling to the *pons varolii*, and as the *pons* is composed of transverse fibres, and is a *conductor of impressions*, and as the structure of the corticle gray matter of the brain is *all cellular*, and as electricity *changes* the "polarization of the molecules of the medium (Faraday), and as a continued current of electricity is capable of *dissolving* fats and water (*electrolysis*),

it follows, necessarily, that a continued current from the amalgam fillings changes the *molecules*, or changes the "polarization of the molecules of the medium," and hence, *must change the condition of the cellular structure of the brain*. And if a brain was perfectly healthy when the amalgam batteries were inserted in the teeth, in a lapse of time proportionate to the quantity of amalgam inserted, the brain itself would be changed from a *perfect normal*, or *healthy* state, to one which is *not* healthy or normal. While, therefore, it might, under some circumstances, be justifiable to insert a set of amalgam batteries in the teeth of the inmates of a lunatic asylum, in the confident expectation that by a *change* or "polarization of the molecules of the medium," the brain structure, by the action of the electricity, would be so changed as might ameliorate the mental condition of the insane people; yet it cannot be justifiable to insert such fillings of amalgam into the teeth of healthy persons, lest by an uncertain change the brain structure of the healthy person be unfortunately deteriorated.

And it follows, if these premises be true, that the *dentist who inserts an amalgam filling* in a tooth is inserting a factor destructive to the good health, good eyesight, good hearing and healthy mental powers of the unfortunate victim, who unsuspectingly trusts himself in the amalgam tooth-stuffer's chair.

Finally, very many diseases known as "nervous," very many of the diseases diagnosed as *female* or *uterine* difficulties, and an innumerable number of cases coming under the province of the specialist, aurist, oculist, or specialist in "diseases of the female organs," (so called) besides many *obscure forms of melancholia*, can be treated successfully only by a skillful dentist, rather than the specialist. And many, very many of these *obscure* diseases, more especially among ladies, would be radically cured by a removal of the amalgam batteries in their teeth, and a refillment with pure gold.

THOUGHTS ABOUT ORAL ELECTRICITY.

BY W. A. PEASE, M. D., DAYTON, O.

A DIVIDED allegiance is a poor qualification for the advocacy of one side of any cause to which allegiance is due. Using more

gold for filling teeth than I do amalgam, I am estopped by my every day practice from giving undue importance to amalgam, or to depreciate the good qualities of gold; and I feel that I am inclined to hold the scales at an even balance, when weighing the various qualities of each. Long familiarity with the behavior of both in the mouth makes me eclectic; and my sense of justice, and what is due to my patients, is the sole umpire which decides which of the two shall be used. This is satisfactory to me, but my dictum may not be, and ought not to be as satisfactory to others; unless they know and approve of the premises on which it rests.

Some years since, I entered more *in extenso* into the consideration of the galvanic and other characteristics of amalgam, in an article in the *Dental Register*, and I dislike to do it again in the OHIO STATE JOURNAL. Hence the article in the September number may appear a little dogmatic, and Dr. Watt was justified in saying that I, he, "begs the question,"—his form of interrogation—"by what authority do you make these statements?"

Now, medicine is not an exact science, and very few of its formularies can pass unquestioned, and beneath none of its *dicta* can the significant letters, Q. E. D.—*quod erat demonstrandum*, be placed, as they are beneath a problem of Euclid. From necessity our investigations must be Baconian; and I had supposed that all of the searchers after truth on the amalgam question belonged to that class,—that they embodied the true professional men, if to be professional, depends upon thought, study and inquisition into the nature of means. They certainly are, as compared with the dentist tamping gold into a cavity, because they accept the gold from the hands of the gold beaters without question, and are mere passive manipulators. While there is a great upheaval of investigation among those who use amalgam, Dr. Palmer is the only exception I think of now. He somehow got it into his head that the lime in a tooth was the positive pole of a battery, and the gold filling was the negative, and that the dentos (where he got that name is a mystery), was being converted into an oxide and hydrogen gas. These aurophobists, while often good manipulators, are as abounding in whims and conceits—the shadow of a thought—as old women after their third cup of tea.

In 1849 I brought to Dayton twelve galvanic batteries for medical purposes; and it was several years before the last of

them were sold. At that time there were five physicians in a row, some on each side of and adjoining my office, and they and others sent patients to me for galvanic treatment, and at the same time I was using a battery for plating purposes. Subsequently I used another battery, which generated a current by the friction of a wheel, and other batteries were used, the same or similar to those mentioned by Dr. Keith, including those little French pocket batteries, so portable and effectual, as well as the one for extracting teeth. About twenty years since I made a galvanic battery, or belt, for my own use, that was subsequently modified, and a few for others. Later I became acquainted with the action and requirements of Pulvermacher's, while a neighbor, who made and sold belts in several of the Western States, frequently explained the peculiar action of them, and the difficulties he experienced in teaching people to keep them in order. Now, a belt will work only one day, and not very effectually so long, without cleaning. About the same time I had a threatening attack of Scribner's palsy, occasioned by using the small steel excavators. I told a physician it seemed to me that an irritable patient conveyed to me a part of his nervous excitement through the instrument. He remarked it was a novel idea, but he thought there was truth in it. For that, also, I made a galvanic device. During this time there have been physicians near me, who made a specialty of galvanic treatment, and I have had the benefit of their experience.

Now, if these various galvanic devices become inactive from want of cleanliness on account of the oleaginous, or other exudations from the body, and have to be scoured or treated with an acid to restore them to action, how much galvanic action can a small amalgam filling generate after the first meal, or even after it has been thoroughly coated with saliva? Galvanism comes from surface exposure and not from bulk. A large mass of amalgam may have a larger storing capacity than a smaller, if that is possible, when it always tends to equilibrium; but the superficies exposed being the same the results must be equal. If galvanic action is developed by an amalgam filling, it should be when it is fresh—under manipulation. Then there is an intimate contact between it and the plugger, often a steel-handled instrument of considerable size, with a globe or hatchet end, presenting weight of metal and surface exposure sufficient to

give decided results. When there is but a thin partition of bone between the pulp and the filling, and another instrument is used much colder than the filling, a start may sometimes be seen that requires nice discrimination to determine whether it is the result of galvanism or change of temperature. As I use little amalgam that is not composed of silver and tin, other more composite alloys may produce other results that I have not seen, but it is improbable they would during the insertion of the filling, and they would be subject to the same condition as others after the first meal. When it is considered that friction accumulates electricity, and that the friction of the amalgamating process leaves static or accumulated electricity in the mass, ready to be discharged, it is surprising that patients do not oftener start than they do. Then, the crystallizing process, and the slight heat eliminated by it, should give appreciable results, but I have never seen a *start* when returning to polish a filling partially hardened, or even after the elapse of several days, even though the patient was restless and sensitive during excavation. Such manifestations, if frequent, should excite the attention of the most obtuse observer, and they could not be ignored—besides, the patient would complain of it, and inquiry has failed to find others who have observed it. I have never been able to produce a galvanic taste on the tongue by bending a platinum or other wire to touch the under surface of it, and another to touch the upper, and then connecting them with an amalgam or gold filling or plate. In considering the amalgam question it should be recollected that neither silver nor tin have a good capacity for galvanic excitement; they are not easily oxydized; and that capacity is much diminished as an alloy. If, to precipitated silver, a little pure tin is added, and both are amalgamated, there are more indications of galvanism, that is of disintegration, than with the same proportion of each in an alloy; and a little gold foil added to them seems to increase it. The simpler the amalgam the better it seems to be. Sufficient time has not elapsed to test, to my satisfaction, some of the higher alloys of to-day, but some of them seem promising.

Now, it is useless for the present purpose to discuss static or residuary galvanism or electricity, if such exists outside of a lead chest, where it can be stored for a time; or possibly in a lead cap, placed for its sedative and non-conducting qualities under a gold

or other filling. Electricity is exceedingly mobile, and all things are alternately in a $-|$ and $-$ condition, and equilibrium is constantly being restored and destroyed. It always accompanies molecular change, even thinking is an excitor, and the friction of two strata of winds may develop a thunder storm or a cyclone, as well as the nimbi, cirri, or other clouds; but there must be friction on, or access of an acid to an accumulating surface. The interposition of oil between an acid or the bisulphate of mercury, the same thing, and a zinc, would as effectfully prevent galvanic development as the oiling of the generator would extinguish Edison's light. This is the salvation of the mouth, as the oil in the food or in the saliva, with desquamated epithelial scales, excludes oxygen, as well as soluble chlorides from fillings. Then the affinity of oxygen for silver or tin is small, while that of sulphur for silver is great. The sulphurets in the breath, or the sulphur in the food, soon coat the surface with a sulphide, that, in connection with oleaginous matter, renders the surface unoxidizable, and proof against any acid a careless physician can use or the mouth or stomach can tolerate. The teeth may succumb to it, but the amalgam fillings will remain intact, their black or swarthy faces uncleansed. How, then, does galvanism from amalgam fillings effect the brain or the organs of special sense? It does not, and the assertion that it does, is but the vaporings of a vaporing brain. It is not intended here to assert that no galvanic action is ever felt in the mouth, because all of the possibilities of manner or of material are not known, or that some fastidious person may not so scrub a filling as to give temporary access of an acid to it, but that all such cases, if any, are exceptional—as rare as angels' visits. All probabilities are against it. But what if a rarely appreciable current should exist? What injury would it do? It must be interrupted occasionally, for the conditions of the mouth are ever varying, the juices, either neutral or alkaline, rarely acid; the teeth more or less coated than they usually are with the normal oleaginous sulphide. At any rate, the fillings never disintegrate, decay away from the teeth, as the teeth decay away from them, but not as often as they do away from gold. What damage, then, could a little current do? We sometimes use electro-galvanism for defective hearing, with favorable results, by putting one pole in or near the eustachian tube, and the other in

or near the ear to arouse dormant nerves and give functional activity.

Man is an electrical animal, thought is electrical vitality, electricity presides over all his functions; it gives brilliance to the eye, flush to the cheeks, it is the swift-winged Mercury that brings intelligence from remote parts, reminding him of his corns, of his rheumatic twinges, of the digestion of his stomach; and it makes him pleasant or disagreeable, brilliant or stupid, and when at last its currents cease, life is gone. Such a minute accession of electricity to the body would be like the heat of the fire-fly added to that of the sun. It cannot hurt the body or the teeth, unless it develop an acid, which is denied, as being beyond any known conditions that do, or can exist in the mouth. Acids decay the teeth, but they are occasional, almost inappreciable, and the decay is not diffused but local, and it is caused by destructive fermentation of tissue on the spot. Hydrogen does not leap through the air from an amalgam to a distant gold filling, (the negative pole), nor does it run along the gum to it, to develop an acid, to decompose the dentine, by decomposing a film of moisture on the surface of it. The fillings are rarely submerged; those in the upper teeth never; the fillings are never decomposed or wasted; the soluble chlorides in the mouth are infinitely weak, often, occasional; and not in sufficient quantity to give appreciable results, unless they are caught and decomposed during mastication and before they are swallowed. The conditions of fillings in the mouth have nothing more than an imaginative and fanciful similitude to those of a battery. Could a feeble circuit be developed it would be sharp, well defined, direct from positive to negative pole, and it could not spread out and electrolyze the juices of the mouth that are unconfined, constantly accumulating and constantly being swallowed. Quick as it is, the soluble chlorides would elude it, no acids would be formed or re-combinations to tarry and dally around the margin of a gold filling, to feed upon the lime or animal tissue, according to the taste of the one present. The conditions are wholly dissimilar to a solution confined in a cell. No amalgam is dissolved, and could it be, the hydrogen bubbles would escape from it as they do from a zinc when making a solution, or as hydrogen gas escapes when oxygen is consumed during an oxydation. Nature has provided for no galvanic batteries in the mouth by preventing stagnation; she is automatic. The

accumulation of water excites the nerves to pass it along and call in a fresh supply that prevents electrolysis. Her means of oxydation are more direct, complete, and they furnish a continuous and requisite supply of thermo-electricity for the system. She has not provided for de-enameling of the teeth; that does not occur, and it is wholly beyond her purposes. When it does occur it is partial, local, in spots, due to accidental or acquired conditions of the mouth or of life. The same conditions that caused the original decay, if not prevented by mechanical means, and a relative change of the position of the teeth to each other, will cause marginal decay. There is no need of a battery for that, or galvanic transformation of comparative simple substances into acids; that is a circumlocution not contemplated by nature.

At this time I am wearing for experimental purposes, in reference to this article (and I have worn it, or a similar one, at different times for several years), a double galvanic belt, connected at the ends with a copper and zinc plate of considerable size. It descends from near the base of the brain in two distinct belts the whole length of the spine, but a little on each side of it.

The width of the zinc and copper plates is one inch, and the surface of zinc exposed to the body is not less than twenty-five inches; it is supposed to stimulate the nerves that diverge from the spine to the different organs and to the surface of the body, and give a little impetus to the circulation. At times it is worn around the body in the region of the liver or the kidneys. There is nothing unpleasant about it, and after the first hour there is no consciousness of it, strong as it is; scoured, cleaned every day, and it does not affect the base of the brain, the eyesight, the hearing, or any organ outside of its circuit; and it cannot, any more than the slight acceleration of the circulation would. It simply gently stimulates the parts over which it passes, and I have never seen any but a temporary benefit result from it or any other galvanic apparatus. Could the zinc be replaced by the amalgam, there would be much less galvanic action. It would probably be inappreciable by reason of the low galvanic capacity of the tin and silver in the alloy. It is estimated the greatest surface exposure of amalgam in the mouth would not exceed one square inch, and in nine-tenths of the cases not the half of that, while the balance would range down to a dot. The strongest

belt, coated as the fillings are, wet with saliva, would not work, and a zinc in like condition in a cell, would give in the usual acid little or no signs of action until the oil had risen to the surface by reason of light specific gravity, and the acid had commenced to corrode. Thousands of people wear belts every day, and no effect is felt outside of the circuit. But this may be dogmatic. Who are to decide? Who have the judicial minds capable of dispassionately weighing evidence, of tracing analogies to their ultimate causes? Those who use both gold and amalgam, and have used them during many years, watching the phenomena or the conditions that accompany or surround them, trying to discriminate and give to their patients the material best adapted to each individual case—the man of matured judgment—based upon familiarity with each, or those who use only gold, who have little or no practical experience with amalgam, seeing little of it, and that often as a glimpse, whose judgments are biased by the large fees they are able to extort from their patients for little consideration, as measured by utility, who assume superiority and talk of the others as a class, degraded, unimportant, as the slave master spoke of the mud-sills. Which of those two classes is dispassionate? Which has the judicial mind?

There are many other questions in reference to amalgam that are not now under consideration, that have not been raised, such as the expansion or shrinking of it, etc., and that of evaporation is not, except incidentally, in reference to the contamination of the system or of the special senses by mercury. As that has been raised by "A Physician," notwithstanding the absurdity of it, it demands respectful consideration. There are but three ways that mercury can enter the system from an amalgam filling, viz.: as a metal, by evaporation, by an oxyd, that may be either swallowed or absorbed.

"A Physician" concedes that in the metallic form there would be little likelihood of injury. Let that pass, but there should be no escape, and there will be none, if no more quicksilver is used than will satisfy the affinity of the alloy. There should be no bungling, but metal should be added until the quicksilver ceases to amalgamate it. Evaporation must be decided by careful experiments, that a physician can make as well as a dentist.

Take the scraps of recent amalgam fillings, and as many of

those taken from the teeth as are convenient, the more the better; wash, dry and weigh them accurately on a delicately balanced prescription scale, place them in a clean flask, wash and dry a vulcanizer, place the flask in it, and submit them to as near blood heat as possible for eighteen or more hours, then weigh, and they will be found to have lost nothing that scales can measure. The vulcanizer is not necessary, they can be heated without it, but currents of air will make it more difficult to maintain a uniform temperature. This test coincides with the every day observations of dentists who know that a little quicksilver around the bulb of a thermometer, though heated daily for years to 320 or more degrees of Fahrenheit, loses little in weight. The affinity of silver for sulphur is so great that the sulphur in the food, or the sulphuret in the breath, soon gives it the well known black surface, and it gives no indications of a sulphuret of mercury. There is no free quicksilver to form it, even were it possible to form it in the mouth, and the black, oleaginous surface is an effectual bar to oxygen. This makes it difficult to see how softening of the brain, nervous erythism, or obscure mercurial symptoms can be attributed to amalgam, unless by unbalanced, visionary minds, led away by inapplicable theories that have no solid substratum of facts or observations to rest on. They are mere bugaboos, as insubstantial as the "stuff that dreams are made of."

In this discussion I have endeavored to state the matter as I see it—not to make a point. I might have amplified and given other observations and experiments, but these must suffice. I have used as few unusual technical terms as possible. If by that means I seem obscure to technologists it is a fault they can pardon, as they are few and the other readers are many. If it can be shown that the great interests of the public require the abandonment of amalgam, I shall yield to it, having no allegiance except to the good. But it seems to me that this is not the spirit of some of the advocates of gold. Was it becoming to set up a zinc filling, one unknown to the profession, as a type of the material used, and then blaze away at it through many solid pages? Why it was selected is apparent, as it forms the best positive pole, and it would, if it could be excited and have sufficient surface, connected with a suitable negative, give damaging results, but not to the organs of special sense he enumerates, and

the base of the brain. As he forgets that both poles and the circuit are in the mouth, and as those organs are without the circuit they cannot be injured; so the firing of a blank cartridge from his blunderbuss can injure nothing unless a too confiding reader. As he, and many others, attach great importance to the galvanic theory, it will be necessary to suppose a case: Let the right superior canine and the first molar be filled on their approximal faces, the first with gold, the molar with amalgam, the dam on both fillings fresh and clean; then place against the face of each filling a little acidulated animal fibre, there will be no current, because there is no connection, galvanism cannot flash over the two intervening bicuspid. Now press the dam from the teeth so as to admit a part of the animal fibre to touch the gum, and a circuit is instantly formed, the positive and negative current passing continually. That is called a circuit, and that circuit need not be separate as the two wires that conduct to the hands, but both currents may pass through the same animal fibres, through the gum, along the necks of the bicuspid teeth, as that is the most direct course and offers the least resistance. This passage is only a line; the fluid does not diffuse itself over the palatine arch or over the buccal surface of the gum, but takes the shortest line between the two fillings. When a pole of a battery is taken in each hand, the currents pass up each arm, directly across from shoulder to shoulder and back to the battery; they do not affect the head, the stomach, or the feet. And all the batteries there are in the mouth, provided there ever are any, never affect anything out of it, nor out of a direct line from one pole to the other. Thus it will be seen that the eyesight, the hearing, or the base of the brain can never be affected or reached were there a thousand circuits in the mouth. Now, it is not improbable that there may be occasional sensations in the teeth of some mouths, that may be due to electrical discharges. Some people are more susceptible than others, and the susceptibility varies with age and bodily conditions. When a current of hot air passes over a cold one, thermo-electricity is developed, the same as when a warm and wet mass of clouds meets a cold stratum of air that causes condensation, precipitation. Cold or hot drinks taken into the mouth are disturbers of equilibrium, and thermo-electricity may be attracted by the gold and amalgam fillings in an unequal degree.

Their storing capacity being unequal, as well as their size, there may be a — and — condition, and when the teeth are brought together there may be an equilibrating discharge. All friction is an electrical developer — the friction of mastication or of gritting of the teeth is not an exception. Disturbance may come in a thousand ways. Without attempting to be facetious, it is conceivable a current may be sent along the fifth pair of nerves to the region of [combativeness, exciting it, when the question will arise, such as puzzled the old casuists, who swore? the man, or the wife who failed to put lubricating grease enough in his food? The presence, or absence of lubricating grease in the mouth to mellow the voice, and coat amalgam fillings, is the pivot on which the amalgam question turns.

Here I wish to say that the last sentence in my article in the number for September, viz.: "A physician never knew but a little of the diseases of the mouth, and to-day there is such a weight of ignorance resting upon him as to be oppressive," did not refer to the contributor, whose signature was, "A Physician," but to the profession in general. While there was little in his article important to dentists, there was nothing that was offensive.

REGULATING TEETH—ILLUSTRATED CASE.

BY GEORGE W. KEELY, D. D. S., OXFORD, OHIO.

FIGURE 1 shows the arrangement and antagonism of the teeth of a lady thirty-five years of age, as they appeared when she came to me the first of May, 1882. It will be seen by the cut that the left cuspid is locked inside the inferior teeth more than half its crown, and the alveolar process is thick and consequently will offer considerable resistance in moving the misplaced tooth to its normal position.

The cuspid and left central are in contact, and the lateral is riding on them. The lady having a short upper lip this deformity was very marked. She has a well formed dental arch, and it will be observed she has lost the first superior and inferior molars, as also the third on this side. The temporary cuspid was retained till after the permanent one was making its appearance; then extracted, but too late to prevent the coming trouble. The

lady was teaching in one of our female schools, and, of course, desired the apparatus arranged to interfere as little as possible with her duties, and to accomplish the work as rapidly as possible under existing circumstances, promising to obey orders implicitly, and to call once or twice each day, all of which was religiously performed.

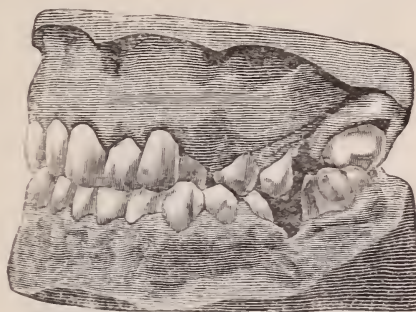


Figure 1.

The apparatus used in this case was a vulcanite plate as fully illustrated in Figure 2. The plate was neatly fitted with clasps around the molars to assist in holding it more firmly in place. This illustration represents the case after the cuspid was moved by the jack-screw A, three-eighths of an inch, which was accomplished in just fourteen days, the screw being turned once or twice each day, and as much force applied as the case would permit. Then the screw was removed, and a pin from an artificial tooth was put in the plate at C, to which a rubber ligature was attached and carried over the buccal surfaces of the bicuspid to the cuspid, for the purpose of drawing it back to the first bicuspid to make room for the lateral (which, from its position, was forced out considerably by the screw) to be drawn down into line; this was done in eight days. Then a ligature was attached to the pin B, and carried over the lateral, which was brought down and in place inside of one week, after which the appliance was removed. In this case we dispensed with a retaining plate, but used No. 40 cotton thread, well waxed, and tied it around the left central, carrying it over the lateral and under the cuspid, then tying it to the first bicuspid. This was renewed some five or six times during the subsequent eight weeks. I saw the case the 10th of November, and the teeth remain as perfectly in place as shown in

Figure 3, which was taken the day my patient was dismissed. During the time the plate was worn, it was removed daily and cleansed, and the lady given an opportunity to thoroughly brush her teeth. This apparatus was adjusted on Friday evening for the purpose of giving the lady the intervening time between then and Monday morning to become accustomed to it, before resuming her duties in school. Her pupils did not know she had a plate in her mouth, but she found it necessary to talk with more deliberation than before.

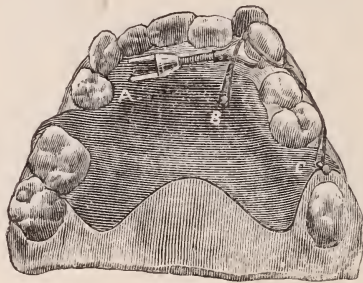


Figure 2.

Figure 3 represents the appearance and articulation of the case on its completion, showing a very marked improvement. There was no inflammation and no great amount of soreness during the operation. Under more favorable circumstances I would prefer more time to complete such an operation for one of her age. She willingly paid my moderate fee, being disposed to complain because it was not more. She fully appreciated what I did for her, which to me was far more satisfaction than any ordinary fee.

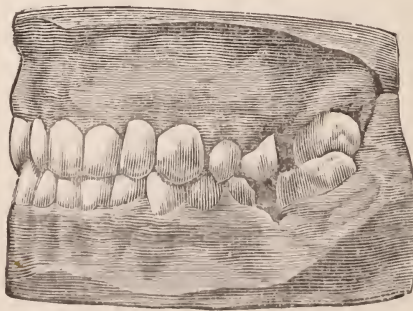


Figure 3.

DENTAL COLLEGES.

BY A. BERRY, D. D. S.

[Read before the Mad River Valley Dental Society.]

THE founders of our dental colleges, Harris and Hayden of the Baltimore, in 1843, and Taylor, Rogers, and Cook, of the Ohio, six years later, did great service to our profession. Prior to this time those desirous of becoming dentists were usually superficially taught by practitioners, and most of them engaged in practice after a few weeks, or months of study. There was no dental school, nor any associated effort in the world for the elevation of the profession. Each member kept his secrets, or imparted the knowledge of any improvement he might make, or became cognizant of, for a consideration.

But this state of things was to be changed, and the first movement to accomplish it was to educate those entering the profession, imbuing them with a love of it, and leading them to associated effort for its elevation. The course adopted was successful. The early colleges did a noble work. The unselfish devotion of their professors was instilled into their students, and in a few years dental societies were formed in various parts of the country. These dental schools succeeding well, others were founded, until they are in every section of our land.

The pioneer colleges received with open doors all pupils who applied, without any regard to their educational status. This was, at that time, perhaps, the best course to pursue. Ours was a new country, and teaching dental students in colleges an experiment; and the fraternity was to be advanced to a state of enlightenment entitling it to take rank with the learned professions.

There are grave objections to the management of most of our dental schools; while it is not to be denied that the teachers engaged in them are the best men for their places, the fault lies in the administration of the colleges.

Formerly there were those who willingly made great sacrifices, as teachers in the dental colleges, believing that, in the state of the profession at that time, it was their duty to do so without

financial reward. But now, in the advanced condition of the profession such inducements do not exist, and similar sacrifices are not to be expected. The teachers must now receive financial compensation for their labors. The schools not endowed must hold out strong inducements to attract students. Since they supply the funds it is necessary to matriculate them without requiring them to understand even the common branches of an English education.

So far as the writer of this has been able to learn, a similar course is pursued by the dental colleges connected with universities, excepting those of Michigan and Vanderbilt.

Ichabod might be inscribed on the doors of any one of these colleges, not connected with universities, that would not cheerfully receive all who apply, and graduate them without much regard to their attainments. Students would go elsewhere, and the colleges would die of inanition.

As most dental students, when matriculated, are wanting the mental training to make them apt scholars, and few of them have much knowledge of the studies to be pursued, the tuition in our dental colleges is too short. The average term of those, not departments of universities, is about nineteen weeks. Deducting two weeks to get the pupils well at their studies at the commencement of the terms, two weeks for the holidays, and one week for the examinations at the end of each term, leaves fourteen weeks for study. It is not to be presumed that the students will devote much time to study during the vacations.

Are twenty-eight weeks, with all the advantages a college can afford, a sufficient time to acquire a knowledge of anatomy and oral surgery with dissections, physiology, histology, pathology, therapeutics, chemistry, and operative and mechanical dentistry? The result is that most of the students in the dental schools acquire a smattering of what is taught, and are usually graduated without much attention given to the evidences of their attainments, shown by their examination. Is this the proper way to elevate and maintain the standing of a profession recognized as learned, and a branch of that engaged in the practice of the healing art?

There is little probability that dental schools, not connected with universities, would agree on and abide by any rule requiring

a good English education of those received as pupils, and extend the time of pupilage to enable them to gain the requisite knowledge of the subjects taught. Were all dental colleges departments of universities, these difficulties might be more readily avoided. Supported from the common fund they would be free from the strong inducements to receive students without preliminary examination, and grant diplomas to those not well qualified.

The interests of the profession, as well as of the student, would be greatly promoted by extending the time of lectures in the dental schools to nine months in the year, and requiring attendance on three terms previous to examination for the degree.

Editor's Specials.

"Write the Vision and make it plain."

END OF THE SECOND VOLUME.

WHEN accepting the position of editor of the new JOURNAL, we were beset with doubts, misgivings, and fears. We felt sure that all through the years of physical disability the brain was in good working order if only it could be supplied with its natural stimulant, oxygenated blood. But for a few years the rate of respiration had been reduced to four and a half to six times a minute, twenty-two being the rate when in health. The best brain in the world could not work efficiently under such circumstances. An improvement, up to ten and twelve, had taken place, but we feared this might not be permanent. Two years have elapsed, and we have done all the editorial work on the JOURNAL, and feel more like doing active work than at the beginning. Feeling thus we expect to be able to make the future of the JOURNAL much better than the past. We know the feelings of the profession better than we did, and can work more intelligently. We are more in earnest, more attached to our publishers, if possible, and shall, therefore, spare no effort to make the JOURNAL worthy of the profession to whose interests it is devoted. We

need not speak for our publishers, their work does that. If, when totally inexperienced, they could make the handsomest, and best gotten up periodical in the profession, what can they not do with the light gained by their years of experience?

We are very grateful to our contributors and correspondents who have helped to make the JOURNAL a success. That their articles have been appreciated is evident in the fact that they have been extensively copied. From no other dental journal have so many pages been transferred to other periodicals. In most instances they have been properly accredited, while in some they have not, but we believe wholly through oversight.

We verily believe that all present subscribers will do well to renew their subscription promptly, and should endeavor to have their neighbors subscribe also. What a list our publishers would have if each one should secure a new subscriber. Each of you can do it if you try. Your neighbors need the JOURNAL, and its publishers have shown that they deserve such liberal patronage; and if you double up on us that way we'll feel ashamed to slight its editorial work.

MAD RIVER VALLEY SOCIETY.

REORGANIZATION.

THIS excellent local society reorganized October 24, 1882, after a suspension of six years, at the Philips' House, Dayton.

There were present Drs. J. Taft, A. Berry, and C. N. Wright, of Cincinnati, the latter gentleman having lately returned from ten years' of practice in Europe. From Xenia there came Drs. George Watt, George Paine, and W. H. Sillito. From Middletown, John Paine and Dr. Corson, Dr. George Keely, of Oxford, and his son, Dr. Keely, of Hamilton. Springfield was represented by Dr. Oldham, while Toledo sent us Dr. Bodine, and as for the Dayton dentists, they turned out *en masse*, Bradley, the Hubbards, father and son, Elson, Morris, Satterthwaite, Pease, Tizzard, Grovenor, Sample, Whiteside, Adams, and Zell. If we have forgotten any of them we humbly beg pardon, as we have tried to get them all in.

At 11 o'clock Dr. George Keely called the meeting to order, and W. H. Sillito was elected Secretary pro tem., after which an enrollment of members was taken. Then followed the election of officers, with the following result: A. Berry, President; C. N. Wright, Vice President; W. H. Sillito, Secretary and Treasurer; Executive Committee, Drs. John Paine, J. Taft and C. Bradley.

Drs. John Paine and Sample were appointed a committee to conduct the newly elected President to the chair.

This duty having been performed, Dr. Berry made a neat speech, acknowledging the honor conferred upon him, and declared the society ready for the transaction of business. The first topic on the programme was "Dental Colleges," upon which subject a very able and suggestive paper was read by Dr. Berry, in which he reviewed briefly the origin and progress of dental colleges, and spoke of the great benefit they had been to the profession in raising the standard of what a dentist should know and what he should be. Their defects were indicated as lack of endowment, and, therefore, of means to supply the very best teachers. He gave as his opinion that the time of the yearly sessions should be lengthened from nineteen weeks each year as now required to nine months of the year.

Dr. Wright read a very interesting paper on "Dental Prosthesis."

In the afternoon lively discussions were held, including among other subjects, replanting and transplanting teeth.

In the evening session Dr. Pease read a well written essay on the "New Departure," not in relation to filling teeth, but with reference to alveolar abscesses. We expect to publish all these papers in the JOURNAL at an early date, but lack room at present.

The essayists were thanked, as was the Philips' House. A livelier meeting we have never seen. The next (annual) meeting will be held at the same place in May, 1883. The editor of the JOURNAL read a skeleton of a biographical sketch of the society, and was requested to continue and prepare it for the journals. As the minute book is lost, we ask all the members to furnish us brief accounts of any interesting incidents they can recall in the history of the society, so that we can prepare something worthy of the society.

Correspondence.

"I charge you that this epistle be read."

SALIVARY CALCULUS IN CHILD FOUR YEARS OF AGE.

Editor of the Ohio State Journal of Dental Science.

SEPTEMBER 20th, there came under my notice a Russian child four years old; this child was first seen by the physician who brought him to me about one month previous to this time. He had then what appeared to be a bony tumor of the right lower alveolus, together with a deep seated ulceration of the vestibule and cheek; the edges of the gums surrounding the mass were ragged and ulcerating; the entire mucous membrane of the mouth hyperemic with increased temperature, and the child very irritable. Tonic medication with astringent washes were prescribed and the case dismissed with instructions to return in a few days. At the end of a month the case again returned, the ulcers but little improved, and was referred to me. I found all the teeth of the upper right side coated with tartar; those of the lower jaw so completely enveloped that the teeth were indistinguishable, the mass divided at the canine tooth, and quite loose, I removed the piece containing the two molars which had completely lost their attachment with the alveolus, the calculus resting on the bone of the jaw; the parts were very angry and bled freely, the remaining teeth were cleaned as well as possible under the circumstances; I ordered aromatic and astringent washes, with great care as to cleanliness. Have not since seen the child, but hear that the parts are rapidly approaching resolution.

I think the case worthy of mention, considering the extreme youth of the patient, and that the knowledge of such cases should be a warning to mothers of the physical depravity that may be worked in the mouths of their children by lack of cleanliness and attention.

O. L. H.

Societies.

"Wherewith one may edify another."

THE Ohio State Dental Society will meet in the Board of Trade Rooms, where the meeting was held last year. President Emminger states that he has succeeded in getting a reduction in railroad fare. Members and visitors pay full fare going, and upon certificate of attendance, get reduction on return ticket. How much reduction the JOURNAL is unable to state. Let all the dentists of the State be present at the Board of Trade Rooms, at Columbus, December 6th, at ten A. M.

Books and Pamphlets.

"Of making many books there is no end."

DENTAL METALLURGY: A MANUAL FOR THE USE OF STUDENTS, by CHAS. J. ESSIG, M. D., D. D. S., Professor of Mechanical Dentistry and Metallurgy in the Dental Department of the University of Pennsylvania. Published by the S. S. White Dental Manufacturing Co., and for sale by Ransom & Randolph, Toledo, Ohio.

A neat little manual of some two hundred and fifty pages, of-course well printed, and its matter is well adapted to the wants of students, while it has a table of contents, and a most thorough general index. Let every student buy it, and let all the profession be students.

TRANSACTIONS OF THE OHIO STATE DENTAL SOCIETY FOR 1881. Published for the Society by W. M. HERRIOTT, Indianapolis.

Neatly gotten up, proof read with reasonable care, and a fair setting forth of the Society's doings and sayings. The discussions are reported more accurately than common, as far as we have had time to observe.

ETIOLOGY OF DENTAL CARIES, ACIDS OR GERMS; WHICH? By Dr. C. T. STOCKWELL, of Springfield, Mass.

A neat pamphlet of 15 pages republished from the New England Journal of Dentistry. Read before the New England and Connecticut Valley Dental Societies.

The essay shows careful preparation and a goodly degree of research. We may notice some of its sentiments in a "Special," if time and health permit.

THE ORIGIN AND PHYSIOLOGY OF NERVOUS FORCE. By W. C. BARRETT, M. D., D. D. S. Reprinted from the OHIO STATE JOURNAL OF DENTAL SCIENCE. A very neat pamphlet of 15 pages.

As the JOURNAL readers have all seen the essay, it is not necessary to notice it at greater length.

DENTISTS' LIABILITY.

IN a suit decided by the Marine Court, General Term, recently, Judge McAdam writing the opinion of the Court, the liability of dentists to their patients is stated. The suit was brought by Thomas J. Keily to recover damages from Gardner Q. Colton and Lewis M. Colton for injuries caused by allowing a piece of a tooth, which was being extracted, to drop down the plaintiff's throat while he was under the influence of laughing gas. The piece slipped from the forceps, and for four weeks thereafter the plaintiff was troubled with a cough until he finally coughed up the piece. The Court holds that while a patient is under the influence of an anæsthetic, which deprives him of the use of his faculties, the operator is bound to exercise the highest professional skill and diligence to avoid every possible danger, and in this case it is the opinion of the Court that on the trial the circumstances shown were sufficient to carry the case to the jury on the question of negligence.

The judgment appealed from was in favor of the plaintiff for \$500 damages, and this judgment is affirmed by the present decision.

CHLORAL CURE FOR TOOTHACHE.

DR. SPORER, of St. Petersburg, uses chloral hydrate in the following manner: Take three or four small lumps of chloral, wrap them in a little wadding, place this tampon in the hole in the tooth, and let it remain until dissolved. The most severe toothache will disappear in a few minutes under this treatment.—*Drug. Circular.*

